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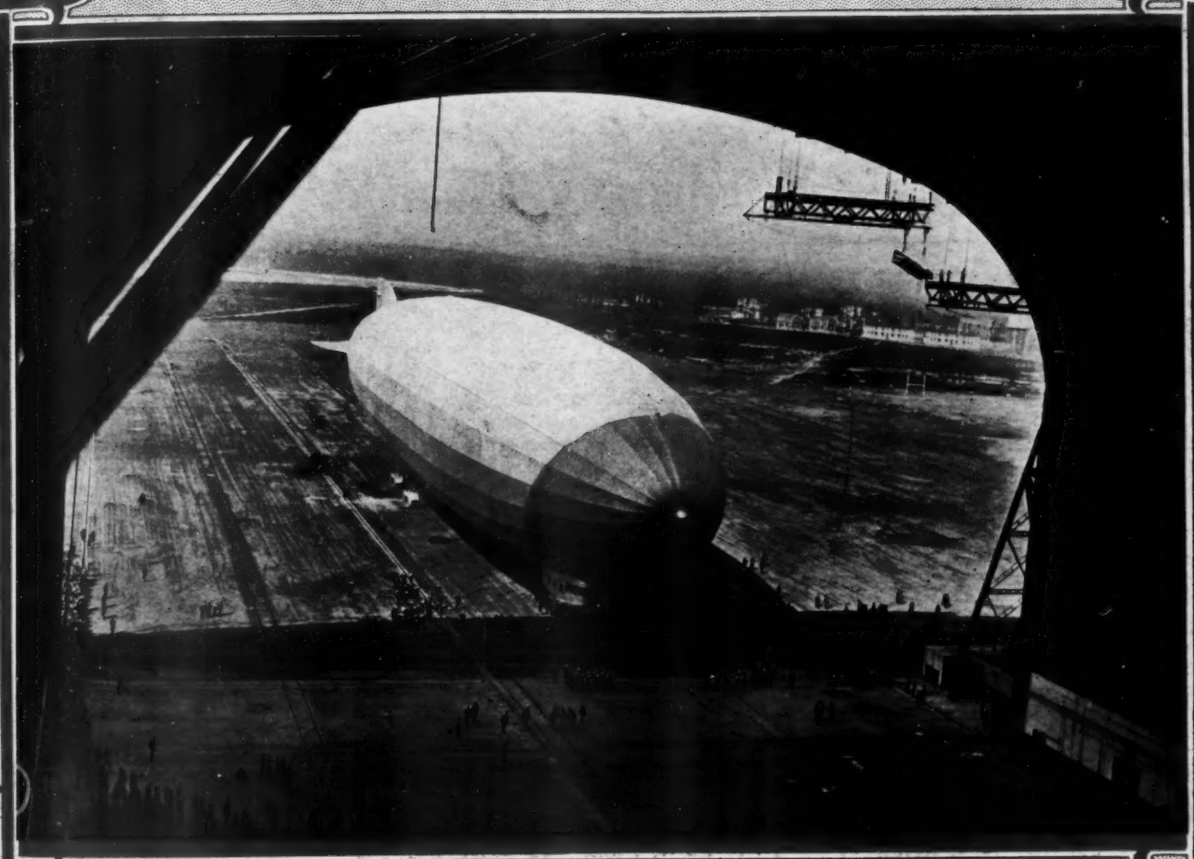
AVIATION

The Oldest American Aeronautical Magazine

OCTOBER 27, 1924 Issued Weekly PRICE 10 CENTS



End of a Great Flight: The ZR3 is being walked into the Lakehurst shed

VOLUME XVII

NUMBER 17

SPECIAL FEATURES

STORY OF THE WICHITA AIR MEET

THE TRANSATLANTIC TRIP OF THE ZR3

WATCHING THE DAWN OF COMMERCIAL AVIATION

THE RICKENBACKER TROPHY RACE FOR LIGHT PLANES

GARDNER PUBLISHING CO., INC.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

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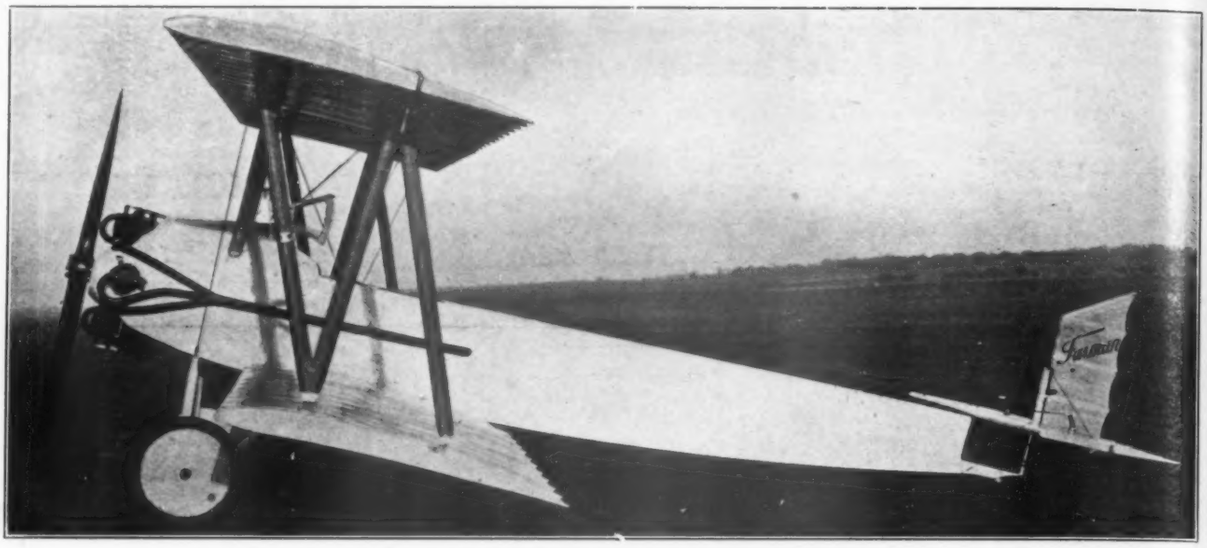
FARMAN

SPORT PLANES



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OCTOBER 27, 1924

AVIATION

VOL. XVII. NO. 17

Published every Monday

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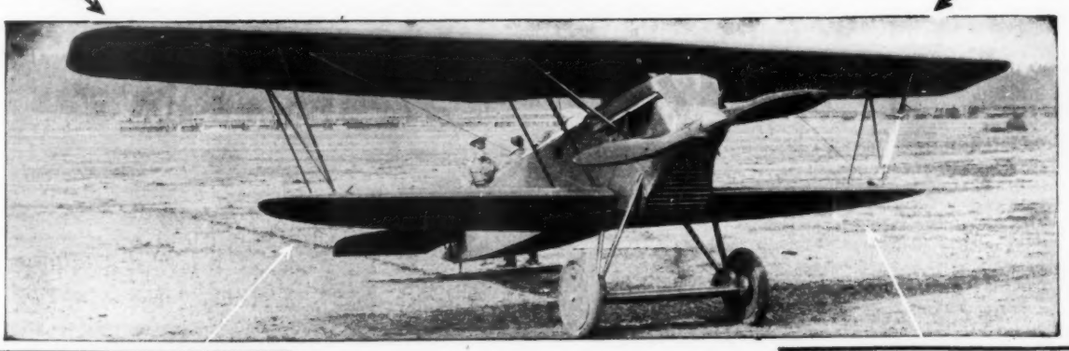
COST

QUALITY



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This threefold combination is indeed hard to beat, as each one preeminently leads its field. The plane of Curtiss design includes all the essentials necessary for high speed racing and high performance military aircraft, among which are:

Extreme maneuverability with comfort and visibility to the pilot at all times;

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The Curtiss D-12 motor, in addition to holding all the speed records of the world, now has to its credit Lieutenant Maughan's achievement. On account of the small frontal area of the D-12 for the first time the size of the pilot rather than the engine controls the size of the fuselage.

The Curtiss-Reed one-piece duralumin propeller, the safest and most efficient propeller ever tested, is unaffected by hail or rain, tall grass, small particles, age or climatic conditions. It too has done its part in winning these high speed and endurance tests.

The Curtiss Pursuit as a fighting unit has no competitor in the world. It has set new standards for plane, motor, and propeller.

On September 3rd Lieutenant R. C. Moffatt flew from Boston to New York in 58 minutes!

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VOL. XVII OCTOBER 27, 1914 No. 17

The Future of the Rigid Airship

THE lighter-than-air advocates are having their day. The popular enthusiasm over the successful trip of the latest Zeppelin is so genuine that the whole country seems to be ready for the next step.

The inside story of the way the Los Angeles (ex-ZR3) was obtained by the United States Government will be told some day, and when it is, it will rival in romantic interest some of the tales of Yankee ingenuity that grace literature. After long negotiations and delays the big rigid has covered herself with glory and her builders with added fame. With the Shenandoah and the Los Angeles, the United States now becomes the leading exponent of lighter-than-air development.

With this advantage there comes a responsibility. For many years there have been more fantastic schemes circulated concerning airships than any other aeronautical possibility with the exception of the backward helicopter. The great and steady advance made by the Zeppelin type has convinced many conservative thinkers that in the airship there lies the future of long distance speedy transportation. That they have military or naval uses is more uncertain, but there will never be a better time to ascertain the value of the airship as a weapon of defense than now.

It is gratifying to know that the greatest experts in airship operation are not making claims for their craft that will not bear close analysis. This has been the difficulty in the past. Very extraordinary figures have been circulated that would not check. But the interests behind the airships are now trying to keep on a sound basis. They are willing to attempt progress only after each successive step has been taken and the advance shown to be practical.

So far as the commercial side is concerned, the element of cost of operation is the one uncertain factor. This can never be judged by government management. Only privately operated, experimental airship services can furnish a true picture of this item.

McCook Field

AVIATION has been giving many reasons why the Government is making a mistake in establishing a large $5,000,000 experimental station in Dayton. It had supposed that Dayton was unanimously in favor of such a plan. It was with great surprise, therefore, that one of the most prominent citizens of Dayton, and one with a national reputation in aviation, was heard to remark at the races: "It would be a crime for the government to spend $5,000,000 on a permanent McCook Field here" or words to that effect.

Others who heard the remark followed the statement with reasons why Dayton is a most unsuitable location for an experimental station. Summarized, these reasons are: Dayton has no facilities for testing seaplanes. If there should ever be an independent Air Force in this country the experimental plant would have to be moved. If Congress should wisely recommend that the aeronautical experimental work of the Army and Navy be combined, then Dayton would be most unsuitable for such a station. The distance from Washington precludes close contact between the Executive heads of the Air Service and the Engineering force. A location near Washington, such as Aberdeen, Md., would make available to the Engineering Division all the scientific resources of the Government which are centered near or in Washington. Besides, the executive officers in Washington would have closer contact with the engineering development and the engineers would know more of the desires of the Air Service Staff. Today representatives of the aeronautical industry have to spend too much time on trains, first going to Dayton and then to Washington.

The old argument that an engineering station should be located inland, away from the coast for fear of air raids is sheer nonsense. The greatest engineering laboratories in the country are within an hour's flight of the coast, which incidentally is the least vulnerable border of any country in an air sense. Only a country with aircraft carriers could approach our coast and these would be sunk before they even launched a bombing plane. So the "inland" argument fails.

Just because Dayton has given five thousand acres of land is no reason why common sense should not be used in the location of a new McCook Field.

In all this discusion, it should be remembered that AVIATION is as anxious as any other agency to have a strong and capable Engineering Division. But it should be an engineering laboratory. The manufacturing equipment should be junked. The functions of the Engineering Division should be clearly outlined, the best location for it secured regardless of "gifts," and then it should create a reputation for impartiality and independence that would make it esteemed and respected.

Future Air Races

THE greatest problem that confronts the Contest Committee of the N.A.A. for the coming year is the satisfactory arrangement of next year's National Air Meet. With a loss of $70,000, even though held on an Army field with much material assistance from both McCook and Wilbur Wright Fields, the Dayton Air Meet will not prove an alluring object lesson. Even in Washington serious doubts are entertained as to the advisability of entering military or naval aircraft in future national races.

As a matter of fact, the whole Air Meet idea seems to be tending toward the old time "aerial circus." The bright hope for the future lies in commercial aircraft, and the N.A.A. officials will do well to consider the possibilities of a meet that would encourage these types rather than military aircraft.

ZR3 Reaches Lakehurst from Germany

Last Zeppelin Covers 5000 Miles in 81 Hours Across Atlantic

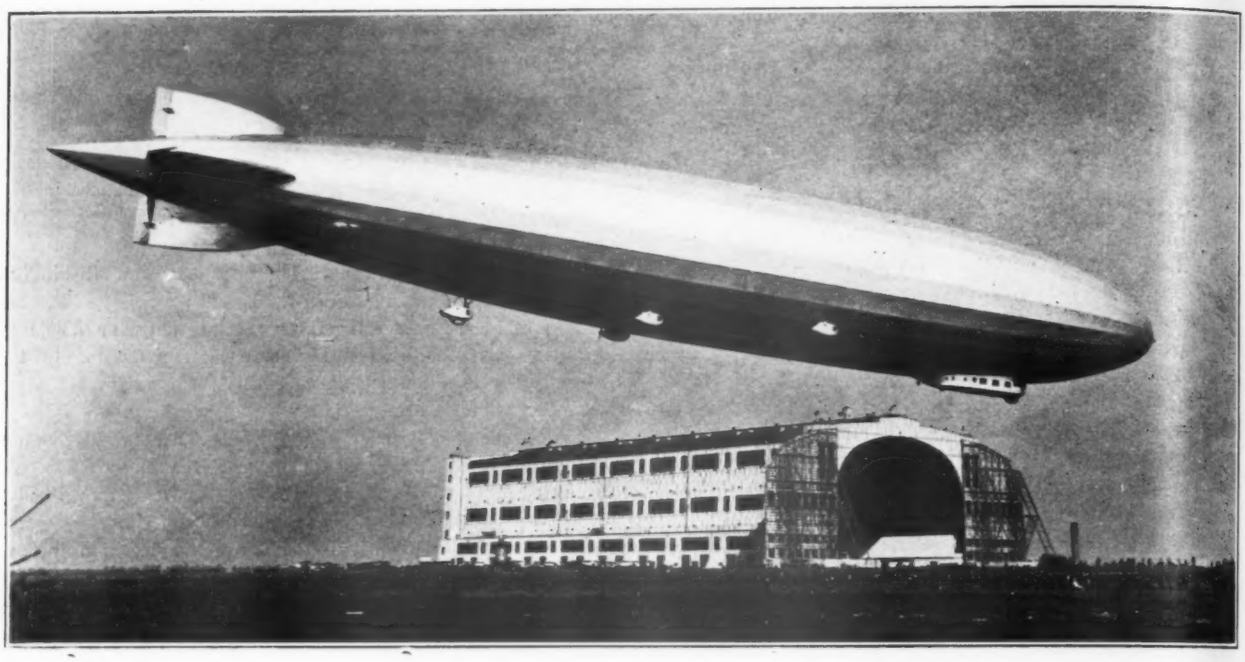


Photo Kadel & Herbert

The ZR3 arrives at the naval air station at Lakehurst, N. J., her new home, after an 81 hr. flight from Friedrichshafen, Germany

The reparation airship ZR3, the 126th airship of the series built by the Zeppelin Co., which left Friedrichshafen, Germany, on Sunday morning, Oct. 12, reached the naval air station at Lakehurst, N. J. on the following Wednesday morning, having covered the intervening 5000 mi. in 81 hr. 17 min. Dr. Hugo Eckener, one of the Zeppelin Co.'s veteran pilots, commanded the ship which carried a crew of thirty-two, including four American observers. Those on board were:

American Officers

Capt. George W. Steele, Jr., U.S.N., who will command the airship after delivery.

Comdr. Jacob H. Klein, Jr., U.S.N., who will be her executive officer.

Lieut. Commander Sydney M. Kraus, U.S.N., who will be her engineer officer.

Maj. Frank M. Kennedy, representing the U. S. Army Air Service.

German Officers

Dr. Hugo Eckener, present commanding officer of the ZR3, president of the Zeppelin Co.

Ernst A. Lehmann, graduate engineer, executive officer and senior watch officer.

Lieut. Hans C. Flemming (x), navigator and watch officer; chief pilot of the Zeppelin Co.

Wilhelm C. Siegle, engineer officer, shop superintendent of the Zeppelin Co.

Lieut. Hans von Schiller, retired, assistant quartermaster; airship pilot of the Zeppelin Co.

Franz Wittemann (x), chief quartermaster; airship pilot of the Zeppelin Co.

Walter Scherz (x), quartermaster; assistant to the director of the German Airship Operating Co. ("Delag").

German Warrant Officers

Ludwig Marx, rudder helmsman and photographer.

Max Pruss (x), elevator helmsman.

Karl A. Sammt (x), elevator helmsman.

Willy Speey, chief radio operator.

Leonhard Freund, radio operator.

Johann Ladwig, radio operator.

Gustave E. Belser (x), chief machinist; shop foreman of the Zeppelin Co.

August H. Grofzinger (x), machinist; foreman of the Zeppelin Co.

Hermann Pfaff (x), machinist; foreman of the Zeppelin Co.

Emil Martin (x), machinist; foreman of the Zeppelin Co.

Hermann Pabst, machinist; foreman of the Zeppelin Co.

Carl Tielmann, machinist; foreman of the Zeppelin Co.

German Petty Officers

Ludwig Knorr (x), sailmaker; shop foreman of the German Airship Operating Co.

Anton Kiefer, machinist; landing man machinist of the Zeppelin Co.

Albert Leichtle, machinist.

Wilhelm Fischer, machinist.

Ernst Schwendt, machinist.

Ernst Lang, machinist.

Albert Tassler, machinist.

Martin Christ, machinist.

Johannes Auer, machinist.

Eleven of the German officers on board, those designated with (x) behind their names, are to remain with the airship after its delivery and will serve until after the American Navy is able to manage the craft itself.

Comparison with the Shenandoah

The following comparison between the Shenandoah and the ZR3 is of considerable interest.

Length—Shenandoah, 680 ft.; ZR3, 660.2 ft.

Diameter—Shenandoah, 78 ft.; ZR3, 90.7 ft.

Height—Shenandoah, 96 ft. ZR3, 101.6 ft.

Gas capacity—Shenandoah, 2,150,000 cu. ft.; ZR3, 2,400,000 cu. ft.

Total lift—Shenandoah, 130,000 lb. (using helium); ZR3, 153,000 lb. (using hydrogen).

Dead weight—Shenandoah, 75,000 lb.; ZR3, 91,000 lb.

Speed—Shenandoah, 70 mi./hr.; ZR3, 76 mi./hr.

Horsepower—Shenandoah, 5 engines, 1,500 hp.; ZR3, 5 engines, 2,000 hp.

Crusing radius—Shenandoah, 3,000 mi. with helium, 4,000 mi. with hydrogen; ZR3, 4,000 mi. with hydrogen.

Crew—Shenandoah, 31 men; ZR3, 30 men.

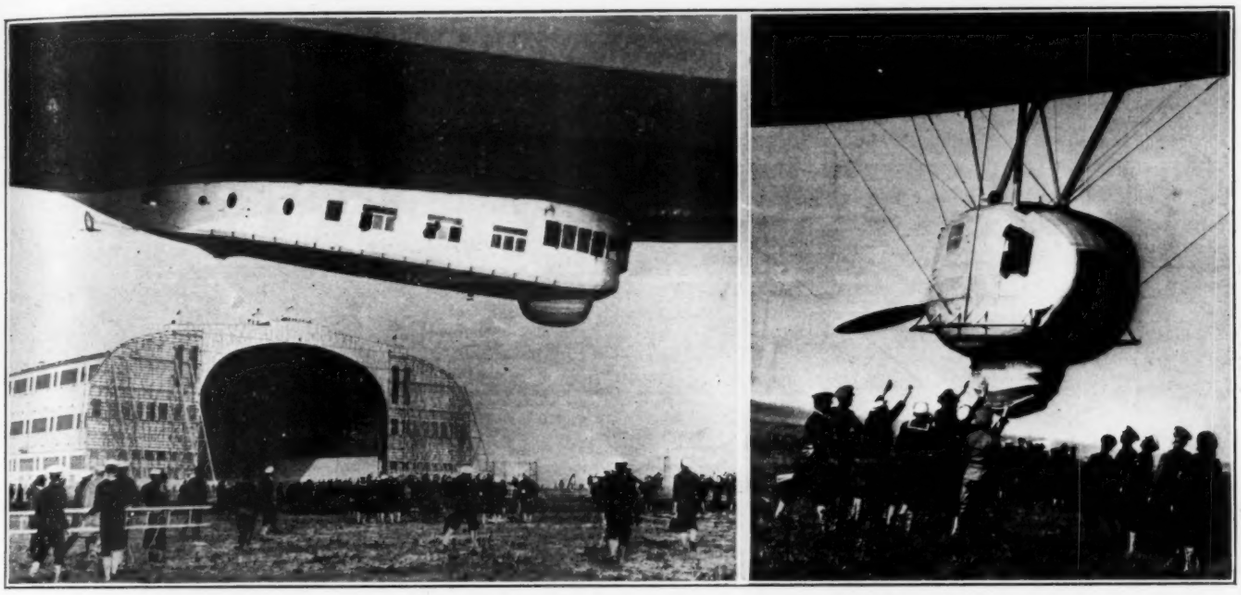
Story of the Flight

The flight of the ZR3 was originally scheduled for last spring but various delays occurred in the construction of the ship and there were considerable delays in the delivery of the motors. On Aug. 27 a trial flight was made in which the ship proved itself very maneuverable but there were vague rumors that the motors had not proved entirely satisfactory and that certain parts had to be changed. On Sept. 6 and 11 the ship again made short trial flights a result of which adjustments were made to the motors. A long flight was then undertaken which covered a majority of the German towns and aroused a frenzy of patriotic enthusiasm among the population. However rumors still persisted that the motors were not entirely satisfactory and the announcement that the ship was to sail on Oct. 11 caused considerable surprise.

Oct. 11 was a warm foggy day and the ZR3 which was loaded to its utmost limit refused to rise. Some ballast and fuel were let out but the ship still did not have sufficient buoyancy to rise and it was decided to postpone the flight until the next day. The next day, while still foggy, was somewhat cooler and at 6.35 a. m. the great airship started on its momentous cruise. The great crowd which had gathered to see the start was disappointed as the ship was shrouded in the mists almost before it left the ground. The ship gradually gained altitude but it was not until it had gained an altitude of 2,500 ft. that it cleared the fog and came out in the sunshine.

Friedrichshafen, it will be remembered, is on Lake Constance, which bounds the North East corner of Switzerland. From here the ZR3 headed its way down the Rhine between the Black Forest and the Alps, but at Basle it turned off and started its trip across France. By this time the fog had burnt off and the ship rolled and pitched in the heated air. The crew said that this was particularly noticeable over the Côte D'Or from whence comes the famous Burgundy wine. The flight across France was made at a fairly low altitude but avoiding the larger towns. At one time the wind shifted to a brisk South West and it was almost decided to shift the course to the Mediterranean and Gibraltar. By 3 p. m. the whole of France had been crossed and the ship headed out to sea at the mouth of the Garonne (near Bordeaux). Holding a southwestern course, the ship crossed the coast of Biscay and about 8 p. m. it began paralleling the coast of Spain. The crew reported that the scene and situation made an impression that was nothing short of uncanny. From the precipitous cliffs of the coast and the mountain chains rising behind them descended squalls of such violence that the airship began to labor in an astonishing manner and it became difficult to maintain it at the proper altitude. Moreover, these rain squalls indicated reliably that stronger winds and dirtier weather were ahead.

The ship had evidently run into the edge of an area of low pressure and from 8 to 11 p. m. it ran through a series of squalls. The rest of the night was uneventful and in the morning an English steamer was sighted bound from New York to Port Said. This ship gave them their position and they found that they were only 16 mi. off their course.



Close up views of the cabin car (left) and one of the engine cars of the ZR3, taken on the ship's landing at Lakehurst

Pass the Azores

By this time the ship had burned up about eight tons of fuel but it had also lost considerable gas in flying over France. When the sun of the second morning warmed up the gas, the ship rose to nearly 5,000 ft. and blew off 8,000 cu. m. of gas to regain its equilibrium. At this time the ZR3 was running on only four engines as this saves 20 per cent in fuel and only cuts down the speed by 10 per cent. By noon of the second day the Azores were sighted and mail was dropped at Terciera. Up to this time the pilot, Dr. Eckener, who was in charge of the ship had very good meteorological information, but after leaving the Islands he was less certain as to what lay ahead. The course at first was laid along the 40th degree of latitude.

At first all went well, for the weather was clear, with very light south wind. Gradually, however, the south wind freshened and began to veer to southwest. At about nine o'clock in the evening it had reached a velocity of between eight or nine meters, and it seriously hindered progress; for with only four engines, the ship was now making only about 45 mi./hr.

At about this time the airship began to get in touch with the cruisers Detroit and Milwaukee which had been stationed near the Grand Banks to render any assistance possible. Communications were not good but it was understood that the Detroit, which lay far to the north, was in a strong east wind. It was therefore decided to shift the course to the north, but

this was not done until 5 a. m. on Oct. 14. The temperature during the night had been much too hot for comfort. When the ship was turned on its course and headed for Cape Race, Newfoundland, the wind was quartering on the stern and the ship was travelling along at a rate of well over 75 mi./hr. As the morning sun warmed up the ship, she again rose to some nearly 7,000 ft. and blew off more gas. Toward 11 a. m. of the third day the wind gradually died down and, as had been expected, the ship soon ran into a strong easterly wind. By this time the ZR3 was in close touch with the Detroit and the Milwaukee, and many messages were being relayed through to the press and the Navy Department. Shortly after noon the ship turned its course toward Sable Island. On the wings of the freshening easterly breeze the ship's speed was more and more accelerated—sixty miles, seventy miles, then eighty miles per hour.

In the Fog

Gradually the east wind veered to north and increased to thirty miles an hour. Thus the ZR3 sailed rapidly toward the fog banks which usually spread over the sea to the southwest of Newfoundland. By two o'clock the ship was in the midst of a thick fog.

For a while she maintained altitude in order to observe the development of the wind, but at four o'clock she rose above the fog.

As darkness came the wind freshened until it reached a velocity of about 35 mi./hr., and the ship raced along with only occasional glimpses of either sea or sky. A number of rain squalls were encountered, but by ten o'clock the weather had cleared, the full moon shone brilliantly, and the ship had run out of the area of the fog.

Over New York City

The wind gradually shifted to the North and then to North West and by 11 p. m. of Oct. 14 the coast of Nova Scotia was sighted. The well lighted coast line was skirted for about three hours. The temperature was extremely cool and in strong contrast with that of the previous night when the ship was still in a semi-tropical climate.

By 4 a. m. the multitude of lights which constitute Boston when seen from the air appeared out of the darkness and the four Americans felt that they were really approaching home. At 7 a. m. the ship was over Mitchel Field, L. I., from whence she circled over the Rockaways and up the bay to New York. As the ship slowly cruised up and down the island, the inhabitants rushed forth to view the ship as it slid low over the high buildings. In deserihing the news papers were moved to lyric rhapsodies such as

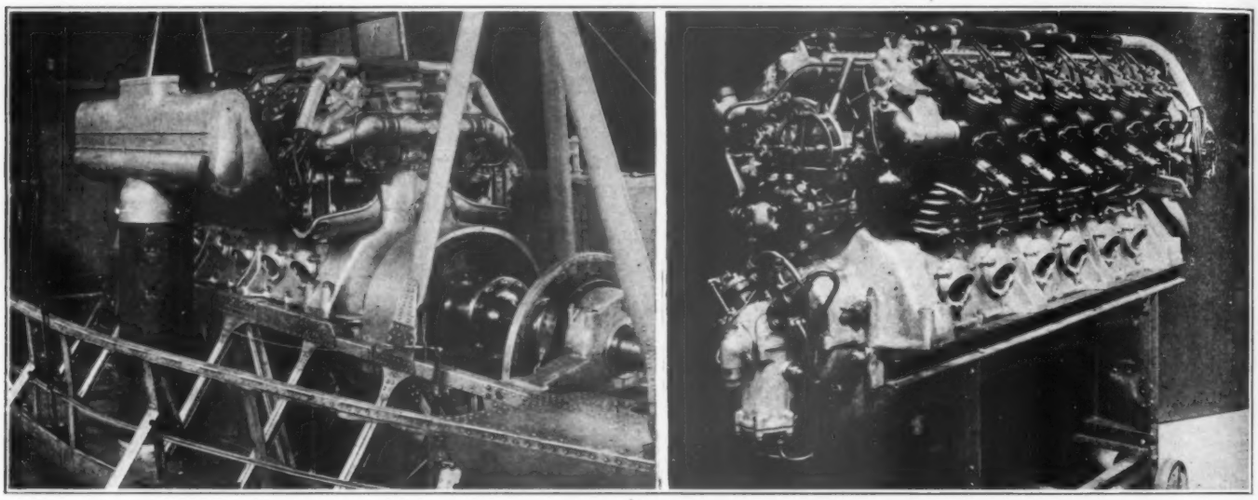
"Like a true queen of the air she swept majestically through the morning mists, then dipped as if in regal recognition of the homage of her newly acquired subjects, whose jubilation seemed so mingled with awe and wonder that many shouts died upon opened lips, giving way to the greater tribute of silence."

The ship circled several times over the city before it headed for Lakehurst. It was a truly impressive sight and stirred the imagination and memory in many ways as one thought of the Zeppelin so dreaded during the war and which now on a mission of peace joins the two nations in a great bond of common interest.

The ship came in view of Lakehurst at 9.16 and after circling to the south she nosed down toward the field valving hydrogen at the same time. The motors were stopped and then started up in reverse at 9.52 and a coil of rope was dropped from the forward cabin. The ship was hauled gently down and walked into the hangar and was made fast in the big shed by 10.38.

A crowd of about 1,000 persons had gathered at the field to see the ship land. They were most boisterous in their enthusiasm, but it did not seem to disconcert the crew. Many of the German-Americans who had come to see the pioneers of the air arrive were moved to tears when they realized that the last ground which the ship had touched was the soil of the Fatherland.

The ship was put through the regular custom and immigration inspection such as apply to an ocean liner. The crowd was excellently handled by the marines.



Two views of the new 400 hp. Maybach 12 cyl. V type engine, five of which propel the ZR3. A sliding camshaft permits the engine to be reversed for maneuvering purposes, thus dispensing with a reversing clutch

A Trip Through the Ship

There were many notables of the aeronautical world present at the arrival of the ship. Detroit was represented by William Stout and Stanley Knauss of the Stout Metal Airplane Co. and by Carl Fritchie of the Aircraft Development Corp. which is building a metal clad airship. Philadelphia was represented by Harold Pitcairn who flew in with his Oriole. Harry Vissering of Chicago, who had much to do in the arrangements which allowed the building of the ship, was very much in evidence and quite rightly proud of the great flight which he had been instrumental in bringing about. The most interested spectators of the arrival were several officials of the Goodyear-Zeppelin Co. who own the Zeppelin patents for this country.

Through the kindness of Paul Litchfield, vice-president of the company, C. G. Grey, editor of *The Aeroplane* and one of the staff of AVIATION were shown through the ship shortly after the arrival. The cabin, though not luxurious in its fittings, was certainly most comfortable. In the rear of the forward cabin is a neat little kitchen, a dining room and a wash room. In the front is the navigating room with a sweeping view forward, between is the passenger compartment which might best be described as an enlarged section of a sleeper. The seats are so wide that the passenger can sleep

cross wise to the length of the ship. An upper berth lets down over each seat so that four people can sleep on either side of the wide aisle. One must ride in great comfort and with plenty of room to stretch in this ship, in fact one can not see it without the desire of going up in it.

The navigators cabin was still filled with bunches of flowers which had been presented before the ship left Germany. Several boxes of sausages had been left out on the tables by the custom inspectors, but the ship on the whole looked clean and ship shape, and did not at all give the impression that it had been on the longest air cruise ever accomplished. The crew too, as they disembarked, looked fresh and unfatigued. Even Captain Eckener who had only taken three hours of sleep during the voyage looked as if he could have recommenced the trip.

The long and narrow gangway which led along the keel of the ship was most impressive. One looked down an endless complexity of girders and bracing wire with the half filled gas bags over head and wondered at the extraordinary engineering ability of the German constructors. It seemed impossible that such a tremendous and solid looking craft should be lighter than air. The more one wandered through the ship the more one was impressed with ingenuity and ability which was evinced throughout the craft. There was nothing superfluous, but everywhere one found interesting devices necessary for the operation of the craft.

President Extends Congratulations

On the day following their arrival Dr. Eckener, members of his staff and Captain George Steele went to Washington where they were received by President Coolidge. They also appeared before the National Advisory Committee for Aeronautics, of which Dr. Charles W. Walcott of the Smithsonian Institution is Chairman.

A luncheon was given for them at the Hotel Hamilton, attended by prominent naval officers, at which Secretary Wilbur announced that the ZR3 would be renamed Los Angeles.

In addressing the gathering the Secretary of the Navy said: "We congratulate you upon the successful completion of your flight across the Atlantic and upon the magnificent airship you bring. We trust that your stay may be pleasant and that the friendships formed on your trip and while here may be enduring.

Significance of Trip

"Your visit is of great significance. You have brought to us this splendid product of German skill and of scientific ability. We wish this ship to be a symbol of peace and of friendship between the two nations here represented. We wish you to feel that when the German flag is replaced by the American flag, that the ship you have built will still fly a flag friendly to the builders, the flag of a people honestly desiring the prosperity and happiness of all the German people.

"War, like sickness or contagion, seems to come upon us uninvited. We rarely agree as to the causes of war. We probably could not agree as to the cause of the World War, but we do know that men everywhere desire peace. Let this ship here be a symbol of our hope and desire for peace, for peace between its builders and its owners and all others in the world. Good will—we sometimes call it friendship and simetimes love—is the foundation of peace. We have only good will for the German people.

"When the Prince of Peace was born in Bethlehem, the angels sang to men, "Glory to God in the highest and peace on earth to men of good will." In reminder of this angel song, I will name the ship "Los Angeles" and I trust that the ship may not only be a constant reminder of the angels' song, but also that on each Christmas eve from her place in the heavens, the song may be again broadcast to the world, Peace to men of good will."

Banquet in New York

A dinner was given to the members of the crew of the ZR3 by officials of the Goodyear Zeppelin Co. on Oct. 18 at the Waldorf Astoria in New York. Dr. Eckener pleaded for the preservation of the Zeppelin plant at Friedrichshafen which is scheduled for destruction under the terms of the Versailles Treaty.

Dr. Hugo Eckener, who commanded the ZR3 on her trip from Germany to America

Maj. W. H. Hensley of Mitchel Field said in part, "I am a great admirer of all connected with the Zeppelin concern, and my opinion is that if it is time for the plant at Friedrichshafen to be destroyed then it will be setting back rapid transit in the air fifty years."

C. G. Grey, editor of *The Aeroplane,* said he had seen so many Zeppelins from underneath in time of war that it was cheering to watch one fly down Fifth Avenue in time of peace.

"On behalf of the people in England interested in aeronautics," he went on, "I want to say that we have a great admiration for the Zeppelin commanders and crews who bombed London in the performance of their duty.

"Under the Versailles Treaty the Zeppelin plant has got to be destroyed. I think I can say for the aeronautical people in England that the destruction of the plant would be a crime against civilization. The Zeppelin people know everything there is to be known about airship construction.

"We are going to have a try at building a couple of airships in England. One is to be built by the government and one by the Burney-Vickers group, and so we call them the socialist ship and the capitalist ship. These airships are to connect the mother country with India and Australia. It will be interesting to see whether either of our ships ever get to the furthest of our dominions. If they get to Egypt before coming to grief they will be doing well."

Those Present

Those present at the banquet were as follows:

Dr. Hugo Eckener, Ernest A. Lehmann, Hans Flemming, Hans von Schiller, Wilhelm Siegle, all of the ZR3; Lt. Comdr. J. H. Kline, Jr. and Lt. Comdr. S. H. Kraus, American observers on the trip; E. G. Wilmer, chairman; P. W. Litchfield, general manager; P. H. Hart, treasurer; C. F. Stone, assistant secretary; Harry Vissering, director; F. M. Harphan, director; W. C. Young, Hugh Allen, F. C. Carpenter, of the Goodyear-Zeppelin Co.; Col. Chalmers M. Hall; Lt. Comdr. M. R. Pierce; Col. M. Hensley; Gen. Clarence R. Edwards (retired); C. M. Keyes, president, Curtiss Co.; Frank H. Russell, general manager, Curtiss Co.; Richard F. Hoyt, chairman, Wright Aeronautical Corp.; John S. Cohen; Prof. Alexander Klemin; Chance M. Vought; H. Freyhold; C. G. Grey, Editor, *The Aeroplane,* London; Lester D. Gardner, Editor, AVIATION; I. M. Uppercu; George Meade; Guy Vaughan; Fred S. Hardesty, General Electric Co.; S. S. Bradley, general manager, Aeronautical Chamber of Commerce.

The National Air Congress at Wichita

Southwest Stages Highly Successful Aviation Meet

By LADISLAS D'ORCY

The National Air Congress held Oct. 11 and 12 at Wichita, Kan., was one of the most successful aviation meets that have yet been staged in this country. Coming right after the ill-starred Dayton show, it was a particularly refreshing experience and helped to wipe out the bitterness that "Civilian Air" acquired on the banks of the Mad River.

The organization of the meet was in the hands of the Wichita Chapter of the N.A.A. This body of capable flying enthusiasts led by their active president, L. S. Seymour—who served as a pursuit pilot during the late war—handled all matters pertaining to the meet in splendid fashion.

Excellent Management

Substantial prizes, aggregating $10,000, were offered for the ten events scheduled. The latter practically duplicated those of the Dayton meet, excepting only the light plane events and, of course, the Pulitzer Trophy race. There were five races for commercial planes of all categories, in addition to two "mixed" races for civilian and military ships, a race for Army pursuit planes, and finally contests for parachute landings, dead stick landings, and aerobatics and stunting. To cap the climax, the arrival of the Army airship TC5, commanded by Lt. Col. John A. Paegalow, A.S., from Tulsa, Okla., made the program one long brilliant succession of thrills for the crowd.

The actual management of the meet was entrusted to a race committee headed by John Engstrom, as chairman, with Walter Innes as vice chairman, and Carl Wolfley, president of the St. Joseph, Mo., Chapter of the N.A.A., as referee. Carl Schory represented the Contest Committee of the N.A.A.

A. E. Merriam of Wichita acted as chairman of the local Contest and Technical Committee. Howard Wehrle was the chief starter, and, as several contestants remarked to the writer: "With Wehrle as starter you never have to worry about anything."

Odis Porter and C. S. Ricker, both of Indianapolis, acted as chief timer and alternate timer, respectively, as they had at the Dayton meet and at the two previous National Air Races. Their careful timing was, as usual, a feature that receives little public recognition, but which is none the less of prime importance.

Meet Postponed on Account of Rain

The meet was scheduled to open Friday, Oct. 10, but on account of the heavy rains it was postponed one day to allow the dirt roads of Kansas to dry up and so enable automobile visitors to come to Wichita.

The field itself, known as California Section, was not at all affected by the rains, however, for it consists of excellent sod which has never been plowed and which is still covered with buffalo grass.

The publicity regarding the meet was well managed, and the local press and city authorities effectively cooperated to make the meet generally known to the public.

On the first day of the races, Saturday, the 11th, about 1200 automobiles were parked on the flying field, but a much greater number found vantage points on small hills overlooking the airdrome from a distance. Shortly after noon, while a squadron of Air Service ships was circling over the business section of the city, all roads leading to the California Section became crowded with traffic.

The Walter Innes Trophy Race

Nine entrants were lined up on the starting line in the race for the Walter Innes Trophy and $800 in cash prizes, the first event of the day. Fifteen minutes before the start a red flag was raised on the timers' stand, meaning: "Warm up the engines." The start was signalled by means of a white flag, the raising of which warned the mechanics to pull away the chocks, while the actual getaway was given by the simultaneous lowering of the two flags. Corresponding flags were raised and lowered at the starting line to indicate that the signal had been understood.

Racing in Gusty Weather

A gusty wind of about 20 mi./hr. was blowing most of this day, making flying a rough business. The race was a 40 mi. affair, four laps over the 10 mi. triangular course, for two-seater low horsepower commercial planes (up to 570 cu. in. displacement.) It marked the beginning of a successful day for the Wichita Swallows, built by Jake Moellendick, for Walter Beach won the event, and Wayne Neville in a ship of the same type took third prize. For a good part of the race Perry Hutton, in a Laird Commercial, looked like a winner, but on the third lap his engine began missing due to a clogged gasoline pipe and he withdrew.

The fliers were started in pairs at 60 sec. intervals in the following order: (1) Perry Hutton, Laird commercial, and Wayne Neville, Swallow; (2) Walter Beech, Swallow, and Hans Hoyte, Yackey Sport; (3) K. R. Garver, Laird Swallow, and Clyde Cessna, Swallow; (4)Lloyd Stearman, Swallow, and Dick Phillips, Swallow; (5) G. W. Willingham, Laird Swallow. At the end of the first lap Beech had overhauled Neville and was crowding closer to Hutton, while Stearman had passed both Cessna and Garver. The planes had some difficulty banking the pylon opposite the grandstand on account of the wind. It put a big premium on skilful flying.

On the third lap Hutton was passed by Beech when his engine gave out, and Willingham withdrew with an overheated motor. Beech thus finished first in 25 min. 47 sec., an average speed for the race of 92.7 mi./hr., which netted him the trophy and $500. Hans Hoyte, who took second prize ($200) with his Yackey Sport, averaged 89.4 mi./hr. Neville, also on a New Swallow, finished third at 87.6 mi./hr. and won $100.

WALTER INNES TROPHY RACE
For Low Powered Commercial Planes

Place	*Pilot*	*Plane*	*Motor*	*Av. Speed mi./hr.*
1st	W. H. Beech	Swallow	OXX6	92.7
2nd	H. H. Hoyte	Yackey Sport	OX5	89.4
3rd	W. Neville	Swallow	OXX6	87.6
4th	L. Stearman	Swallow	OXX6	85.4
5th	C. C. Cessna	Swallow	OXX6	82.9
6th	R. Philipps	Swallow	OX5	80.7
7th	K. R. Garver	Laird Swallow	OX5	79.8
OUT	G. H. Willingham	Laird Swallow	OX5	
OUT	Perry Hutton	Laird Com'l	OX5	

Note.—This race was open to civilian planes having a total displacement of 570 cu. in. or less (taking thus in the 100 hp. Curtiss OXX6) and carrying a contest load of 340 lb. (pilot and one passenger).

A. W. Hinkel Trophy Race

The next event was a free for all race for medium powered commercial machines (up to 800 cu. in. displacement), for the A. W. Hinkel Trophy and $800 cash prizes. Basil Rowe's SVA, from Allabea, N. Y., was the winner with an average speed of 112.5 mi./hr. He won $500. Walter Beech finished second in the Swallow racer, making 105.1 mi./hr. and winning $200.

The great feature of this race was the savage battle between Lloyd Stearman's Swallow and Perry Hutton's Laird Commercial for third place. How close this race was will be seen from the fact that Hutton lost third place by only 5 sec., his average for the race being 92.2 mi./hr., while Stearman, who got in third, averaged 92.5 mi./hr., winning $100.

Judging from the results of the races the Laird Commercial is a slightly slower ship than the New Swallow, but its flying in the races under Hutton's expert hand was the sensation of the civilian flying events. Hutton banked the Laird around

the pylons as if she had been a DH, but despite wonderful maneuvering he could not make up for the ship's lesser speed. Most of the other pilots took the pylons at moderate angles, although Hoyte at times did some high angle stuff of first class.

A. W. HINKEL TROPHY RACE
For High-powered Commercial Planes

Place	Pilot	Plane	Motor	Av. Speed mi./hr.
1st	B. L. Rowe	SVA	C6	112.5
2nd	W. L. Beech	Spec. Swallow	150 Hisso	105.1
3rd	L. Stearman	Swallow	OXX6	92.5
4th	F. Hutton	Laird Com'l	OX5	92.2
5th	H. Hoyte	Yackey Sport	OX5	86.6

Note.—This race was open to civilian planes having a total piston displacement of 800 cu. in. or less, and carrying a contest load of 340 lb.

The New Laird Commercial

The new Laird Commercial, which will be described in an early issue, has a great deal of family resemblance with the new Swallow, which has already been described in these columns. It is a single bay tractor biplane with OX5 engine and it carries two passengers and pilot in addition to 60 gal. of fuel at a high speed of about 95 mi./hr. The landing speed is 40 mi./hr. The fuselage is built of duralumin tubing, assembled with steel sleeve fittings, and wire braced. The interplane struts are steel tubes of N type and incorporate a variable incidence gear, which is one of the chief external points of difference between the Laird Commercial and the New Swallow. The latter has two parallel interplane struts and the radiator is fitted underneath the fuselage, whereas the Laird has it protruding from the top wing. The Laird furthermore has a normal V type landing gear, with shock absorbers in streamlined casings reminiscent of Avro practice, whereas the New Swallow carries the wheels on tripod structures, without any axle, somewhat in the manner of the new Huff Dalands, except that the shock absorbers are wound alongside the wheels. Finally, the Laird has an inverted V type cabane, while the New Swallow has outwardly sloping struts. These characteristics will enable those of our readers who have not yet seen the two ships to identify them without difficulty.

Before the feature race of the day, the Liberty Engine race for the Wichita Eagle trophy and $800 in cash prizes, the four Curtiss PW8's of the 1st Pursuit Group from Selfridge Field, Mt. Clemens, Mich., which is under the command of Maj. Thomas Lamphier, gave an exhibition of formation flying and pursuit tactics. This and the individual stunting later in the day by Lieuts. G. P. Tourtellot and A. W. Blackburn in their Curtiss Pursuits, was by far the most spectacular flying ever seen in the southwest.

There is nothing in the world with which to compare the infernal combination of piercing shriek and the drone of 400 hp. Curtiss D12 engines as these pursuit planes dart down and past the spectators at 250 mi./hr. And to see these planes roar by on their side, with nothing to keep them up but the small area of the fuselage driven through the air by the propeller, is a sight which thrills even the oldest aviation hand.

Liberty Engine Race

Seven De Haviland 4B's took part in the Liberty Engine race, piloted by Maj. H. S. Burwell, of Kelly Field, San Antonio; Capt. B. W. Bedinger, Fort Riley; Lieut. James B. Haddon and C. McK. Robinson, Brooks Field, San Antonio; Lieut. T. P. (Red) Smith, Chanute Field, Rantoul, Ill.; Lieuts. B. E. Boland and H. R. Rivers, Scott Field, Belleville, Ill. The race was a 60 mi. affair. The ships took off at intervals, swept around to the north and flashed down for a flying start.

WICHITA EAGLE TROPHY RACE
For Liberty-Engined Two-Place Planes

Place	Pilot	Plane	Motor	Av. Speed
1st	Lt. J. B. Haddon	DH4B	Liberty-12	127.2
2nd	Lt. T. P. Smith	"	"	126.1
3rd	Lt. B. E. Noland	"	"	122.6
4th	Maj. H. Burwell	"	"	109.6
5th	Lt. H. Rivers	"	"	107.8
6th	Capt. B. H. Bedinger	"	"	105.2
7th	Lt. C. McK. Robinson	"	"	104.0

Note.—This race was open to civilian and military two-place planes powered with a Liberty 12 engine.

From the start it was apparent that Haddon and Smith were setting a smashing pace. Before the race was three laps old, the original starting order had been changed and the slower ships were left in the lurch. But it was skill more than speed that won. Haddon proceeded to show the whole field how a pylon should be rounded at 125 mi./hr. His judgment was excellent and he gained hundreds of yards at every turn.

Haddon was given a great hand when he was announced the winner. His time was 28 min. 17.01 sec., an average speed of 127.2 mi./hr. Smith finished 15 sec. slower for 126.1 mi. Lieutenant Boland took third prize home to the officers' mess with a speed of 123.6 mi./hr. The official timer's record shows that Haddon flew a beautiful race, starting off with a burst of speed on the first lap which he turned at 128.8 mi./hr. He then held his ship to a steady gait around 126 and 127 mi. and opened everything up on the final lap for the fastest time of the day, 129.2 mi./hr. The De Havilands made even better time here than at Dayton although the legs of the course were shorter and turns more frequent.

The TC5 Appears

The Liberty Engine race was scarcely finished when the Army airship TC5 appeared over the field and made ready to land. A landing crew of 70 volunteers had been recruited when Capt. E. W. Hill and Lieut. Harold Rivers arrived with the news that the blimp was on the way from Tulsa. Captain Hill explained the duties of a landing crew and staged a dress rehearsal on the field, which caused a large part of the crowd to drift in that direction,wondering what was afoot.

The TC5 is the same airship which took the Sperry messenger plane aloft at Dayton and launched it from mid-air. She is 202 ft. long and is filled with 220,000 cu. ft. of helium, a fire-proof gas. She is driven by twin propellers and carries four pilots, two engineers and one radio man. The ship has a high speed of 60 mi./hr. and a cruising radius of 800 mi.

Probably not one in a hundred persons on the flying field had ever seen a blimp brought down. The crowd almost got out of hand in its eagerness to see the process. Captain Hills' landing crew did the job well enough, considering their brief training. The gusty wind gave them plenty to do once they had their hands on the handling guys, thrown from the ship's nose. Saturday night she rode at anchor, the anchor consisting of several tons of sandbags.

Gusty Wind Hinders Parachutes

The same wind that played its tricks for the fliers and the TC5, proved a puzzle to the parachute droppers who left their planes at 1,500 ft. and aimed for a mark in the center of the field. J. Sadowsky, of Blackwell, Okla., the first man down, jumped too soon and overshot the mark by 664 ft. Paul Duncan and Jimmy Bethel, of Garver's Flying Circus, jumped together, but Duncan maneuvered his parachute in better fashion and landed within 457 ft. of the mark, winning first prize ($100). Sadowsky won the second prize ($75), while Bethel was third with 740 ft. He won $50. The fourth prize was not awarded.

After the final event scores of persons took their first airplane rides. There were planes enough to take care of them all. Among the commercial ships that flew in was the Tuxhorn Lark (60 hp. Wright L4) of Kansas City, the only monoplane at the congress. B. M. Tuxhorn, its designer and pilot, was at the stick.

The Second Day's Events

Although civilian pilots did some very fine flying, it was the Army contingent's spectacular racing for the Detroit News and Wichita Chamber of Commerce trophies that featured the final day of the Wichita air meet. A crowd of 25,000 persons, many of whom had come from a radius of a hundred miles or more, watched the proceedings with great interest.

The Detroit News trophy was to have been competed for at the Dayton meet by Air Mail ships, but as none were entered the trophy was put up by its donors for the Wichita meet. Like in 1922, at the Detroit meet, the trophy was again competed for by Martin Bombers of the Air Service.

Lieut. J. D. Corkille of Brooks Field, Tex., won this race in which he did some spectacular flying which recalled the racing days of Detroit. Some of the big bombers rounded the pylons at angles varying from 50 to 60 deg.

The weather was ideal for flying, with scarcely a breath of wind stirring. Before 1 p. m., when the first race was called, cars were parked eight deep for a mile and a half.

Dead Stick Contest

A fine showing was made in the dead stick landing contest, first on the program. According to the rules, contestants flew to a height of 1,500 ft. cut off their engines and landed to a mark without power. K. R. Garver, flying a Laird-Swallow, came within 7 ft. 8½ in. of the mark. He won first prize ($100). Basil Rowe's SVA pulled up 10 ft. 7 in. from the line winning second prize ($75). This was a particularly fine performance considering that the SVA lands quite fast and that it requires much skill to handle her with the motor off. Walter Beech, who has the prize winning habit, took third place with a distance of 29 ft. Beech won $50. B. M. Tuxhorn with his little parasol monoplane finished last in the money, winning $25 for landing within 52 ft. from the mark.

Commercial Handicap Race

The first race of the afternoon was a handicap race for light commercial airplanes, seating two or more passengers, for the Wichita Beacon trophy and $600 in cash prizes. Handicaps were based on the fastest lap made by the ships on Saturday, so that if each pilot duplicated his best performance the ships would cross the finish line together. As is generally the case in such handicap affairs, the theory looked handsomer than the practice, and some of the contestants were not exactly jubilant when they heard of their placing. On account of better weather conditions all the planes made faster time, but the most remarkable pickup was made by Walter Beech in the Swallow racer.

WICHITA BEACON TROPHY RACE
Handicap Event for Light Commercial Planes

Place	*Pilot*	*Plane*	*Motor*	*Av. Speed*
1st	W. H. Beech	Swallow	150 Hisso	114.5
2nd	K. R. Garver	Laird Swallow	OX5	84.9
3rd	W. H. Hoyte	Yackey Sport	OX5	96.0
4th	Perry Hutton	Laird Com'l	OX5	95.5
5th	B. L. Rowe	SVA	C6	116.4
6th	L. Stearman	Swallow	OXX6	95.4

Note.—This race was open to civilian planes carrying at least two persons and having an air speed greater than 80 mi./hr. and a total piston displacement of 800 cu. in. or less. The handicap was figured from the fastest lap made by each contestant in the Walter Hinkel Trophy race. The awards have been protested by several contestants.

Beech won the event by adding almost ten miles an hour to his Saturday record, which brought his average speed to 114.5 mi./hr. Basil Rowe's SVA again outdistanced all the commercial planes with a speed of 116.4 mi./hr., but this was only two miles better than his best previous speed. He finished fifth. K. R. Garver took second place in a Laird Swallow, and Hans Hoyte third in a Yackey Sport.

So far the meet had come off without any serious accident. Only Major Tinker's special DH4B, with its highly polished veneer fuselage, looking like a private yacht, elected to turn over on its back when the throttle broke in the hand of its pilot, Lieut. B. E. Noland, while he was taking off. The top wing and the rudder were badly strafed, but pilot and mechanic escaped unhurt. Moral: "Let none tinker with my ship !" Rebellious engines forced some pilots to land and withdraw from the races, but all landings were made under power without any fuss, thus demonstrating to the public the safety of flying, even race flying, with good ships and sound pilots.

The Price of Acrobatics

It is therefore all the more to be regretted that the inclusion in the program of aerial acrobatics—the wing walking variety, not the stunting kind—resulted in the death of Mrs. Ruth Garver, of Garver's Flying Circus, when her Hardin parachute failed to open from a height of about 800 ft.

This dreadful accident, which cast a pall of gloom over the remaining events, happened during the acrobatic and stunting contest for the J. H. Turner Trophy, which was competed for between the various races to keep the crowd interested. Mrs. Garver had gone up on a Laird Swallow, piloted by Wayne Neville, to make a parachute descent together with Mrs. Levaughn Neville, the pilot's wife, who was to jump from the opposite wing. The two performers jumped at the same time. Mrs. Neville's chute opened fully after a few seconds, but Mrs. Garver's did not. It kept "dish-dragging" despite all her jerking and kicking. The ropes seemed matted in the center and she fell nearly as hard as if she had been without support of any kind. The unfortunate woman died without uttering a word as doctors and ambulance men hurried to her. She was terribly crushed.

"A Nerve-racking Business"

Mrs. Neville was using the parachute of Mrs. Garver, while the latter used one belonging to Paul Duncan. She supervised its packing in the bag and declared it to be in good shape. Mrs. Neville insisted that she be allowed to use Duncan's parachute, she said, as she weighs 123 lb., nine pounds more than her companion. It was the first time this season that Mrs. Garver had not used her own chute, and the descent that cost her life was to have been her last for the season. The circus was going into winter quarters and its members were going on a vacation to Texas, where the Garvers own a ranch.

Mrs. Neville declared afterwards that she was through with parachute jumping. This was her third jump.

"One can do parachute work for years, but one always feels nervous before a drop," she said.

"It's a nerve-wrecking business. One can stand it for a season, but you need a winter's rest before you start again. After a hard day's work I've dreamed that Wayne (her husband) has been killed. These dreams are so realistic, too, that they linger with you for days. The tragedy today seems just like one of those nightmares I've suffered time and again during the season."

The Jenny Race

The next flying event was a Jenny race for the Swallow Trophy. Coming after the DH race and the events for the faster and more modern commercial ships, the Jenny race proved even to the lay public a tame affair. It is really surprising how quickly the not-yet-flying public acquires an "eye" for what lines in airplane design make for power and speed. And the four Canucks and the lone JN4D really looked like the last survivors of a prehistoric family in the company of so many Swallows, Wacos, Lairds, Yackey Sports, etc., that mark the several steps in the survival of the fittest commercial ships.

The trophy and $150 prize money was won by D. A. Askew, whose Canuck covered the four 10-mi. laps of the race at the rate of 72.9 mi./hr. R. W. Cantwell came in second with 72 mi./hr., winning $100. Wayne Farrar, on a JN4D, finished third, averaging 66.8 mi./hr. He won $50. Billy Tipton was fourth with 65.2 mi./hr., and Tex LaGrone was fifth with 62.5 mi./hr.

Martin Bombers Act Like Fighters

The Detroit News Trophy race called for a flying start which gave the crowd its first real thrill of the afternoon, for the big bombers circled off to the south and then swooped down across the starting line with both Liberty-12 motors opened wide roaring like angry lions.

Two of the Martins were from Brooks Field, San Antonio, piloted by Lieuts. J. D. Corkille and F. I. Patrick; one from Chanute Field, Rantoul, Ill., commanded by Lieut. J. D. Givens; and the fourth from Kelly Field, San Antonio, in charge of Capt. J. Harvey. Corkille and Patrick's ships,

DETROIT NEWS TROPHY RACE
For Large Capacity Airplanes

Place	*Pilot*	*Plane*	*Motor*	*Av. Speed mi./hr.*
1st	Lt. J. D. Corkill	Martin Bomber	2 Lib.-12	107.0
2nd	Lt. F. J. Patrick	"	"	103.0
3rd	Capt. J. Harvey	"	"	98.0
4th	Lt. J. D. Givens	"	"	96.4

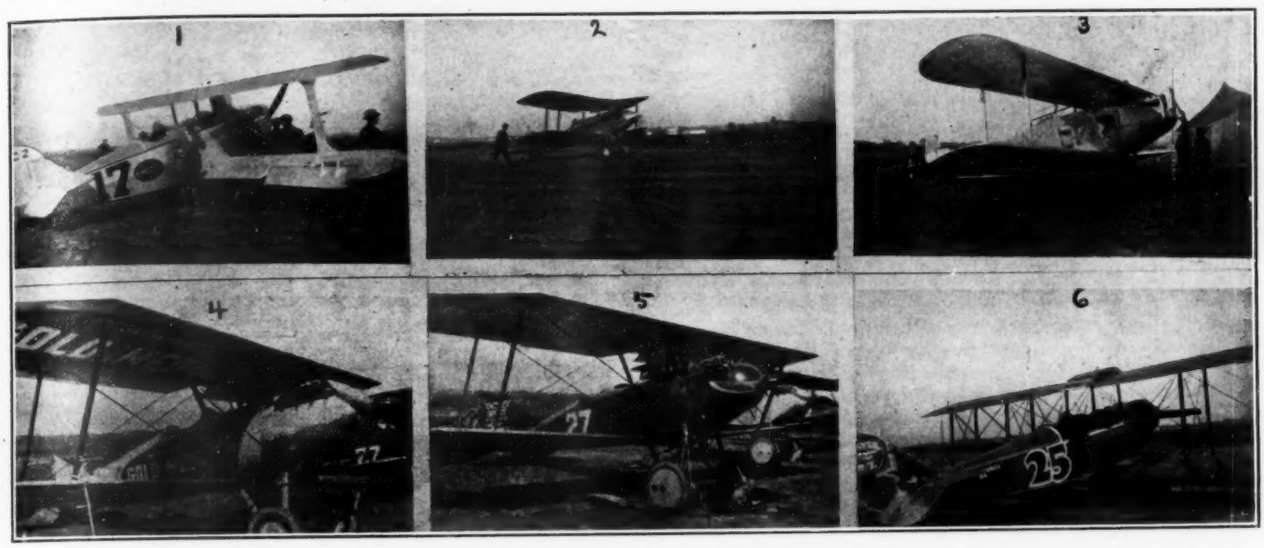
Note.—This race was open to "large capacity civilian and military planes." The trophy was competed for and won last year by the U. S. Air Mail Service, but as there was no competition for it at Dayton, the N.A.A. put it in competition at Wichita.

numbers 55 and 56, won second and third prizes at the Dayton races and showed their superiority again at the Wichita meet.

During the flying start, when the bombers got up a speed of 125 mi./hr., Corkille's motors were missing badly. But once he straightened her out on the first leg of the race she ran like a dream. According to Air Service mechanics, the missing was simply due to the fact that the air intakes are adjusted for the ship's normal speed, so that the engines were getting too much air from diving. At any rate Corkille soon began to show the way to the crowd. The banking at the pylons by the big Martins was a thing of beauty.

PW8's made 170 mi./hr. at Dayton and were 10 mi. slower at Wichita.

The race was a thriller. Lieutenant Blackburn was given a mighty battle for second place by Lieutenant Whitehead. On the last three laps they turned the pylon directly in front of the judges' stand almost together. Tourtellot had ignition trouble on the fourth lap and withdrew. There was some question for a time of disqualifying Whitehead for cutting the northeast pylon but when Judge F. P. Darragrant and Scorer R. M. Burt reported, they said that Whitehead had stayed a half mile east of his course and then cut sharply back gain, making the turn with his wing tip exactly over



Commercial airplanes at the Dayton meet—(1) Hartzell FC2 on which Walter Lees won the N.C.R. trophy; (2) Skywriting Corp. SE5 with streamlined nose; (3) New Waco 8-seater with Liberty-6 engine; (4) OX5 Thomas-Morse on which Ch. Holman flew from Minot, N. D., to Dayton—1020 mi.—with one stop only; (5) Yackey Sport with OX5 engine; (6) Laird Swallow of the Mayer Aircraft Corp.

Corkille's average speed for the race of 60 mi. was 107 mi./hr. Patrick won second place with a speed of 103 mi./hr. Captain Harvey was third. His speed was 98 mi./hr. and that of Lieutenant Givens, who finished fourth, was 96.4 mi./hr.

First prize, beside the trophy, was $500; second prize $200, and third prize $100.

The Curtiss Pursuit Race

As on the previous day the pursuit pilots from Selfridge Field, Lieutenants Blackburn, Tourtellot and Whitehead entertained with a stunting exhibition between the events. Their work in the air was a revelation for every person who had not previously seen the Curtiss PW8 perform, and this includes some mighty old hands at the aviation game. Not even the blimp, TC5, which attracted hundreds of persons, could draw the crowd's attention when the pursuit plane race for the Wichita Chamber of Commerce trophy was started. The rules called for a flying start which meant for these planes a speed around 250 mi./hr.

The 10-mi. course was really too short for the Curtiss Pursuits. Their speed is considerably cut down by the almost vertical banking they do on the turns. Maj. Thomas Lamphier, who won the race, turned the fastest lap on his final circuit. His speed was 159.8 mi./hr. for the lap and his average for the 60 mi. was 158 even. The usual course for these planes is 50 km., about three times the distance at the California section course which explains why these same

WICHITA CHAMBER OF COMMERCE TROPHY RACE
For Army Pursuit Planes

Place	*Pilot*	*Plane*	*Motor*	*Av. Speed*
1st	Maj. Th. Lamphier	Curtiss PW8	Curtiss D12	158.0
2nd	Lt. E. S. Whitehead	"	"	154.0
3rd	Lt. T. W. Blackburn	"	"	152.8
OUT	Lt. G. P. Tourtellot	"	"	

Note.—This race was a closed event for pilots of the 1st Pursuit Group.

the center of the pylon and not inside. His speed averaged 154 mi./hr. and Blackburn's was 152.8.

Awards for Stunting

The stunting contest for civilians was won by the Garver Flying circus. A. Askew took second prize and Irl Beach third. In the military stunting contest Lieutenant Tourtellot was adjudged the winner for his spectacular work in his Curtiss pursuit plane. Sergeant Jackson from Chanute Field was second. The crowd, with the memory of Mrs. Garver's fatal leap still fresh in their minds, was horrified when Jackson leaped from a plane 1,500 ft. in the air holding to a parachute with one hand. As soon as the chute opened he released his grip and started falling through space. He fell 300 ft. when he pulled the ring which released the second

ON TO WICHITA RACE

Pilot	*Plane*	*Motor*
Dick Phillips	Swallow	OX5
Walter H. Beech	Swallow	150 Hisso
Basil L. Rowe	SVA	C6
Lloyd Stearman	Swallow	OXX6
Irl Beech	Swallow	OX5
M. M. Merrill	Spl. Canuck	OX5
W. A. Burke	Swallow	OX5
Clyde Cessna	Swallow	OXX6
A. E. Merriam	Swallow	OXX6
E. M. Laird	Laird Com'l	OX5
L. L. Hefling	L. Std. J1	150 Hisso
B. M. Tuxhorn	Lark Mono.	150 Hisso
D. R. McIntyre	Longren	OX5
J. D. Hale	Oriole	Hisso
K. R. Garver	Laird Swallow	OX5
H. H. Gallup	Lincoln Std.	150 Hisso
Billy Parker	Swallow	OXX6
D. A. Askew	Spl. Canuck	OX5
Hans H. Hoyte	Yackey Sport	OX5
Eddie Spencer	Laird Swallow	OX5

Note.—The winner of this race was Dick Phillips, who carried in his OX Swallow three passengers from Bartleville, Okla., scoring 243 points. The other winners have not yet been announced on account of several protests being lodged with the Contest Committee.

parachute, and floated gently to earth. It was his first time at parachute jumping. Third place in the stunting went to Lieutenant Blackburn of Selfridge Field.

The airship TC5 made a number of trips during the day carrying passengers, and the spectators never seemed to tire of seeing her brought down by the landing crew. The ship left for Belleville, Ill., the next morning after riding out two nights at anchor.

The meet officially closed Sunday night, when the Race Committe announced from the timers stand the winners of the varicus events. The On to Wichita race was won by Dick Phillips on an OX5 Swallow for a flight with three passengers from Bartlesville, Okla., thus adding another noteworthy performance to the score of the Wichita aircraft firm.

It should be added that the Derby Oil Co. of Wichita supplied all competing and visiting planes with free gasoline and oil, and that this was of excellent quality.

This account of the Wichita air meet would be incomplete if it did not mention Miss Gladys Martin who, as "Princess Wichita," flew to Dayton in a Swallow piloted by Walter Beech to represent her home town at the National Air Races. She afterwards returned to Wichita and proved an enthusiastic flying fan, lending the meet the lustre of her gracious personality and charm.

Miss Martin symbolized the warm hearted Western spirit with which the city of Wichita received its aerial guests. Civilian and military contestants alike were unanimous in declaring that they had been treated royally by the hospitable citizenry and that the welcome they received will long linger in their memories. The Editor of AVIATION, in particular, desires to express his heartfelt thanks for the innumerable acts of kindness and hospitality of which he was made a recipient and which he could not adequately reciprocate.

Wichita has placed itself on the aerial map with a flying meet that will be remembered as long as that of Dayton—only differently. The Wichita meet also demonstrated that civilian pilots will act civilly when treated civilly, just as the Dayton affair proved that civilian pilots will not stand for any bullying and that if an Army flying field is so sacred a precinct that it is sullied by their presence in the air, they will in the future go to places where the air is free.

Watching the Dawn of Commercial Aviation

"On to Wichita" and Some Incidental Happenings

By LADISLAS D'ORCY

We were "revving" along merrily over the sunlit fields of Indiana. The weather was perfect, a friendly East wind adding about 10 mi. to our speed, and the countryside had that level character which is a constant source of envy to the Air Mail pilots who fly the New York-Cleveland route.

Four Persons on an OXX6

Our ship, a new Swallow piloted by Lloyd Stearman, her designer, was flying her heavy load with a saucy air of self-satisfaction. There was plenty of reason for it, for the ship carried beside its pilot three passengers (Ted Mollendick, Bill Snook and the writer) and 50 gal. of gasoline when it took off at 6:19 a.m. Tuesday, Oct. 6, from South Field, Dayton, Ohio. The useful load aggregated 980 lb. which with the OXX6 engine and larger tank fitted brought up the total weight to about 2300 lb. This means a wing loading of 7.6 lb./sq. ft. and a power loading of almost 23 lb./hp. With this load our air speed was about 90 mi./hr., and the climb from the ground remarkably smooth. It is hardly necessary to emphasize the wonder of such a performance.

An hour after leaving Dayton, Indianapolis, or rather its smoke pall, hove into sight, and another hour brought us over Terre Haute, also hidden under a smoke screen. The third hour passed, and the fourth was nearing its close. Twenty minutes more and we should have landed at Lambert-St. Louis Field. But then Old Man Gloom grabbed hold of our tail skid.

A Forced Landing

The writer was just saying to himself: "It's really wonderful how these OX's stand up, day in, day out," when the motor contradicted him in unmistakable terms. It missed on a cylinder a few times, but went on again. Everybody on board stuck an ear into the slipstream. Yes, there it was again. This time the motor sputtered its protest and the pilot throttled down, preparing for a landing. Emergency fields there were a plenty. And then an astonishing thing happened. While we were banking into the best field at hand, a stream of warm water shot out from the exhaust manifold and drenched the right hand passenger—the writer, who was counting the blades of grass—and, behind him the pilot. Thereupon, the motor said "Pfft" and conked out, while from inside the crank case came the sharp sound of a metal part that had reached its ultimate stress. "Here goes a connecting rod," said one passenger to himself while Stearman artfully sideslipped the ship into a good hard field adjoining a farmhouse, where a perfect landing was made.

A farmhand who now appeared on the scene informed us that we were 2 mi. south of Alhambra, Ill., about 30 mi. east of St. Louis.

Down went the cowling, the valve gear was stripped and when the front cylinder had been removed it was found that the connecting rod had broken into two twisted parts. A closer examination disclosed how the water had got into the cylinder and from there into our faces. Due apparently to the shearing off of the setscrew which holds the wristpin to the connecting rod, the wristpin had started sliding from one side to the other, digging into the cylinder wall a groove which finally punctured it. And the hole led to the water jacket. It was an accident unheard of so far.

Motor Repair Work on a Farm

There was nothing to do but to take down the engine—and that meant lifting it out of the ship with the means available. These were nothing to speak of. However, by blocking the wheels and turning the ship over on its nose until the forward landing gear struts rested on a pair of wooden horses the operation was successfully accomplished. To ease the strain on the landing gear, a rope was slung to the sternpost, and and this was carefully "paid out"—as they say in the Navy—while the ship was tipped forward, and then fastened to a motor truck. The whole thing was done in a businesslike fashion and there were no slackers. All of which shows the wisdom of carrying on board more than one airgoing passenger and stout rope too, even if you do forget to take along the big screwdriver and your socket wrenches.

A wire to the Robertson Aircraft Corp. at St. Louis brought a complete OXX6 cylinder and some tools by train—the nearest railroad station being only 5 mi. away—while the crew went about the job of taking down the motor. Fortunately, the crankcase was intact, save for a slight mashing away of an engine bolt seat, and after five hours of hard work the engine was reassembled with the new cylinder in place, remounted and ready to run. And it started on the second swing of the prop. Old Man Gloom had departed.

Why the Story is Told

After the motor had been warmed up sufficiently to forestall any more surprises, the New Swallow hopped out of her emergency field with great spirit, even though the engine did

not quite turn up to expectations. Twenty-five minutes later we landed at Lambert-St. Louis Field, operated by the St. Louis Flying Club, where excellent service was had.

If the story of this unusual accident has been told in some detai', it is because we feel that some pilots who read this account may some day profit by our experience. In the first place, it would seem advisable to examine the wristpin setscrews at every general motor overhaul. The fact that they are beautifully wired down, as if to defy eternity, should not deter mechanics from investigating how the setscrew looks in broad daylight.

In the second place, the system of tipping over a ship to take out its motor, though common enough practice among barnstormers, may still offer a valuable tip to some less experienced pilots.

Lesson No. 3 of our unrequested stay over night at Marine, Ill., where there is a good country type hotel, was that it demonstrated the advantage of having an accessible engine mounting. This may appear like a needless repetition of a venerable old saying—but just unfasten yourself all the connections of an engine and see whether you won't find a few bolts or cotterpins that might be made more accessible.

100 Per Cent Safe Flying

And the fourth and last moral of the story is that commercial aviation can be made 100 per cent safe with up to date equipment and flying over good country. Our own experience is there to prove it.

The field in which we landed was perfectly level, with fairly good approaches, but small. It is doubtful whether a Jennie could have made it without at least washing out its undercarriage. It might have, but the chances would have been against it. Any ship with a higher landing speed would have been out of luck.

But our saucy Swallow, carrying its four occupants and its still remaining 15 gal. of gasoline, glided so deliberately that the pilot had to kill altitude by sideslipping her into the field. Once the ship touched ground, she rolled a couple of hundred feet—there was no wind on the ground—and came to a stop.

It was a demonstration of the safety of modern air transportation such as had not been scheduled, but which was all the more convincing.

The next day we started at 10 a. m. for our final dash to Wichita. The story of this flight can be told briefly.

The weather was not as good as on the flight from Dayton, the air being bumpy on account of numerous rain clouds that were chasing each other across the sky. However we never got into any rainstorms, as it frequently happened to other "On-to-Wichita" racers. Most of the trip was made in a strong wind from the south, which, blowing across our course, naturally slowed us down. At 12:46 we landed at Richards Field, Kansas City, gassed and lunched. The businesslike manner in which this airport is operated was particularly noted.

We took off again from Richards Field at 2:01 p. m. and at 4:55 we landed at California Section Flying Field, Wichita, which had been specially prepared for the air meet. Several civilian and military entries were already lined up there.

A State That's an Airdrome

The location of this field is ideal for any, even the fastest, ships. The approaches are excellent in all directions, perfectly level country stretching away as far as the eye can reach. In fact, the whole state of Kansas is nothing but a huge airdrome. And as all section lines run north-south and east-west, it is the easiest thing in the world to get one's bearings from the ground.

It is then no wonder that Kansas is taking to the airplane without much shouting—simply using it as the newest means of transportation. And not only Kansas, but all the Middle West and the Southwest as well. To one coming from the East, where commercial aviation means mainly aerial photographic work and special charter flights with films and photograps, the thing comes as a revelation. The truth of the matter is that in the Middle and South West the people have come to the conclusion that the airplane will solve their transportation troubles as no other vehicle possibly can. With a few exceptions, the country is flat as a billiard table, making for maximum safety in flying. Communities are far apart. Distances are great. Railroad service is very slow and lacks flexibility. And the sudden prosperity that has come with the oil business makes people put a new valuation on the time factor. When they want to get to a place to close a deal they want to get there quickly. A new aggressiveness and a new spirit of enterprise have grown out of this oil business that will change our notions of the "sleepy Middle West."

Farmers That Fly

There is nothing unusual nowadays in a man hiring a plane to fly from Kansas to Texas or Arizona or Colorado. Seven or eight hours' flying in a day is like nothing to these hardy men of the plains. They don't ask for Pullmans—a flivver will do. What more, a good many of them—ranch owners, oil men, farmers, etc.--own and fly their own ships "to get there quick."

At first they took what they could get. Jennies, Canucks, Standards. And then one or two said to themselves that perhaps money would buy something that the average person would find easier to fly. They were willing to pay the price—but you had to show them. The rickety old war crates would do in an emergency, but what they wanted was a practically fool-proof ship. One that if you pulled the stick too far back would not stall and fall off on one wing, but would simply settle and lose altitude until the pilot changed his mind. A ship that could be set down in any old field, so you could walk up to the farmhouse and ask for a glass of, say, milk, and having obtained it, you could hop off again. Finally, a ship that would require the least possible attention on the ground, and that could be repaired in a blacksmith shop or by a carpenter. No fancy stuff. Simple, straight forward, rugged construction.

The Miracle of It

And strange to say, the men of the plains are beginning to get what they want in airplanes. It's coming out slowly, but it's coming. Between the Great Lakes and the Gulf Coast there extends the most wonderful natural airway in the world, many hundred miles broad. Along this airway there are perhaps a dozen, perhaps many more small airplane companies that are burning midnight oil to produce the aerial flivver which the progressive Middle West is asking for. Some of these ships have already appeared on the market, but most of them are still in the blueprint stage. Next year ought to see them burst in upon the public.

In the meantime, those ships that have already been produced are finding a ready market. To cite a striking instance, there is the New Swallow. Since the first of these ships was completed last spring, twenty-six have been sold, and all of them in the Middle West and in the Southwest.

Now twenty-six airplanes do not seem to cut a big figure. But when it is realized that each of these ships sold for six or seven times the amount of money for which a Jennie can be bought on the market, the proposition takes on a different aspect. On the face of these figures even the greatest skeptic cannot deny that there exists a market—a small market as yet, but one which cannot help growing—for safe, efficient and reasonably priced aerial flivvers, or aircabs, or whatever they be called.

The "Central Airway Belt"—as the flat country from the Great Lakes to Mexico may be called for want of a more descriptive term—is now witnessing the beginning of real air transportation. This result it owes almost entirely to its own efforts. The state of Kansas alone—where large cities are few and far between has today about a dozen municipal landing fields and some 200 civilian airplanes. Few, if any, cities in the United States are more perfectly situated to become a national air transportation center than Wichita. A commercial plane, flying for 10 hr. at the rate of 100 mi./hr., may reach before nightfall thirty-five states of the Union as well as six Canadian Provinces and five states of Old Mexico. The interest in aviation at Wichita is evidenced by the fact that within a period of ninety days $20,000 was raised by public spirited citizens to finance the National Air Congress, or flying meet, that was held there on Oct. 11 and 12.

LIGHT PLANES AND GLIDERS

Edited by Edmund T. Allen

The Rickenbacker Trophy Race

On account of some slip between the judges' and the announcer's stands at the Dayton Air Races, the Rickenbacker Trophy cross country race for light planes, slated for Monday, Oct. 6, was not made known to the visitors, or indeed, to anyone outside of those immediately concerned. Consequently there were very few spectators who saw the take off at Wilbur Wright Field for the first light plane cross country race to be held in America. This fact did not, however, interfere with the entry of all available light planes . These were first, the Mummert "Sport," monoplane, second, The Dormay, Henderson engined parasol monoplane, built and flown by Etienne Dormoy of McCook Field, and third, the Driggs-Johnson cabin monoplane, flown by Jimmie Johnson. The latter two light planes were discussed in some detail in the Oct. 13 issue.

The Mummert Sport Plane

The Mummert entry is the third monoplane of the group. It is in fact, a low wing machine of the Junkers type. Harvey Mummert has long been a light plane builder. His biplane of 1921 and the Harley engined high wing monoplane of 1923 will be remembered as among the first serious attempts in the direction of low-powered sport planes. Mr. Mummert's reasons for designing this year's machine as a low wing type were apparently those of structural simplicity and improved pilot's vision. The wing section is a modified Curtiss 35B of the double cambered type described and tested in a recent N.A.C.A. report on experiments with various plan forms and effects of taper on thick wings. In plan form this wing is much like the JL6. Its span is 26 ft., its area, 135 sq. ft., giving an aspect ratio of 5. It tapers from a 6 ft. chord at the root to a 4 ft. chord at the tip where it thins out noticeably. At the root the wing is some 12 in. thick. The wing spars at this place take the landing loads, for the wheels are separated by about 9 ft. The landing gear is very like that once used on the Bat Bantam of Nordyne and Koolhoven design. It is of the separated axle type. The axle from each wheel is bent and carried in to the side of the fuselage. The vertical member which takes the compression loads of landing passes up to the wing at a point some 3½ ft. from the side of the fuselage. Shock absorbtion is taken care of at the top of this strut, entirely within the wing.

Unreliable Power Plants

Fuselage construction on Mummert's machine is of plywood sides and spruce members. The pilot's cockpit is directly over the center of the wing, and the engine mounting is well forward with ample room for a comfortable "office." The big 74 cu. in. Harley engine seemed quite small in the nose of the fuselage. The heavy engine section showed that the designer has had much experience with unbalanced engines. It is remembered that the Lawrance two cylinder Penguin engine with which Mr. Mummert equipped his little biplane of 1921, was of the single-throw type. On several occasions the carburetor is reported to have shaken loose on the Penguins. It required a massive engine-bed to hold them in place. Mr. Mummert has been the only one who has succeeded in building his engine-sections strong enough to withstand the engine vibrations of our V type motorcycle engines. Even so, however, engine-trouble was constantly experienced, causing his elimination from the first race, two forced landings in the second race, and elimination after 20 mi. in the Rickenbacker Trophy Race.

It was a piece of near sightedness on the part of the engine-manufacturers to have overlooked the opportunity to assist the light-plane builders to keep their motors running properly. They lost sight right here of one of the greatest advertising possibilities ever made available to them. As it is now, one wonders why these makes of motorcycle engines will run well in a motorcycle, when they can not be kept going for ten consecutive minutes in a light plane.

The Other Light Planes

Indeed, it was undependable engines that kept out of the race the other light planes. There were four biplanes. Mr. Fasig and Mr. Turner of Wilbur Wright Field, designed and built a light biplane around the 76 cu. in. Indian Chief, fitted with a Thor reduction gear. The fuselage was a very neat welded steel tube structure, fabric-covered. The wings were of standard two box spar design. The Clark Y section was used and gave excellent results during the time the engine kept operating. With a span of 18 ft., a chord of 40 in. and 119 sq. ft. of surface, this machine took off at 30 to 35 mi./hr., and handled surprisingly well in the air. It weighed 475 lb. gross, giving a wing loading of 4 lb./sq. ft. and a power loading of 23 lb./hp. The motor gave a great deal of trouble, vibrated very badly, and refused to carburate properly. Mr. Fasig and Mr. Turner are planning to replace it with some other type of motor. The plane itself is entirely satisfactory.

Snyder's biplane was in general plan-form like the Fasig-Turner machine. It was built in 1920 and 21 and was flown by Macready at that time. Recently it was refinished and entered in the "speed and efficiency" race. Its characteristics are as follows: Span, 21 ft. 7 in.; chord, 3 ft. 9 in.; area, 147 sq. ft.; section, U.S.A. 4; weight empty, 314 lb.; weight full, 500 lb.; engine, Indian Chief running at 2500 r.p.m.; chain drive reduction, 1200 r.p.m. propeller-speed. In the first race the motor suddenly quit when over a very bad terrain and the machine was overturned on landing.

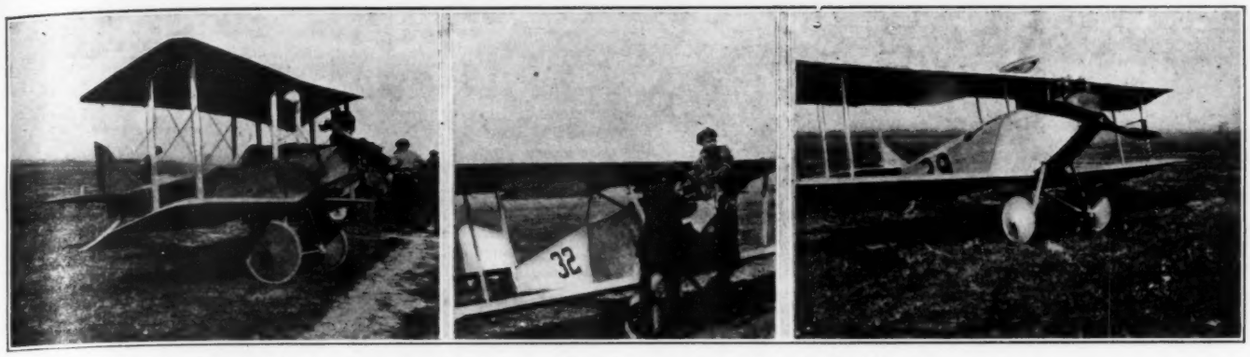
The Heath "Feather" was another light plane built several years ago. It was actually flown in the fall of 1918 in Chicago. It is a single bay biplane of purely conventional design and construction, equipped with a 72 cu. in. Thor motor. It weighed 450 lb. gross. Its span is 22 ft., its area 165 sq. ft., its section a U.S.A. 4 loaded to 3.7 lb. per sq. ft. In the second race the machine left the ground almost immediately upon opening the throttle, floated a bit in the strong wind, and then when a gust struck one wing, it came down and overturned and was thereby eliminated from further trials.

The fourth biplane was one that was built in 1920 by Mr. Mix of Chicago. It is designed as a straight reduction in linear dimensions from a larger plane, with the result that the aspect ratio is very small. This little biplane has a 12 ft. span, 84 sq. ft. area, and weighs gross in the neighborhood of 360 lb. An Indian eight-valve racing motor is installed, driving the propeller direct at 2700 r.p.m. The fuselage is of stick and wire construction and the tail surfaces are single sheets of plywood, externally braced. This biplane did not fly in the races.

Story of the Race

The Rickenbacker race with the three monoplanes as entrants started off according to schedule. All three machines climbed easily and steadily, and left for Norton Field, Columbus, like any ordinary planes. Mummert was reported as having a forced landing 20 mi. east of Dayton, and being unable to continue. A short time later Johnson had a forced landing near Clifton, Ohio, but after cleaning out the gas line he was off again, and eventually came in second place. Mr. Dormoy won first prize and the trophy, a very fine cast presented by Eddie Rickenbacker.

Dormoy's time for the 140 mi. was 2 hr. His fuel consumption was 3½ gal., making a record of 40 mi./gal. of



Three light planes that were entered in the Dayton races: To the left, the Mix Flying Arrow; in the center, the Fasig-Turner; on the right, the Snyder-Macready

gasoline. When compared with the light plane performances at Lympne last year, these figures seem poor indeed. With engines of 46 cu. in. displacement, our English cousins managed speeds of 82 mi./hr., economies of 87½ mi./gal. of fuel, and ceilings of 1300 ft. In this year's competition, now just completed, they require that the little ships seat two persons, with dual control, and they allow but four-fifths the engine size which we admitted for single seaters. The performances of these English light planes were so far advanced that we have still several laps to go to catch up to them. It must be remarked that these light planes now on trial at Lympne, far from being experimental, are to be used during the coming year to give dual instruction to personnel of the R.A.F. and of the government subsidized municipal light plane clubs of England.

If we consider for a moment the difference between the air policies of the United States, France and England, we see that there are three striking reasons for our delay in the matter of light plane development. First, the government itself is behind the light plane movement in Britain as it also is in France. Officials in the Air Ministry have seen in a large civilian flying personnel a vital asset for national defense. In America there appears to be a different attitude toward such problems. We are developing improved aircraft along other lines, but the cost of such development is very great and our air appropriation is small. The quantities of such aircraft must under these conditions be small indeed. Training of new pilots, which is a matter of fully as great import, is progressing even more slowly, for the cost of producing a pilot is also great. Training of new pilots functions practically as a government monopoly. A few enlisted men of the army and navy are receiving pilot training, and the officers reserve corps in schools and colleges is adding gradually to the list of trained pilots. It may be that in emergency we can rely upon a sudden expansion of this training system in the same expensive manner which we were forced to use in 1917. This policy is, however, not farsighted. It is based upon the assumption of practical government monopoly of flying, which at once imposes a definite limitation upon the numbers of the flying personnel which we can have.

The Flying Monopoly

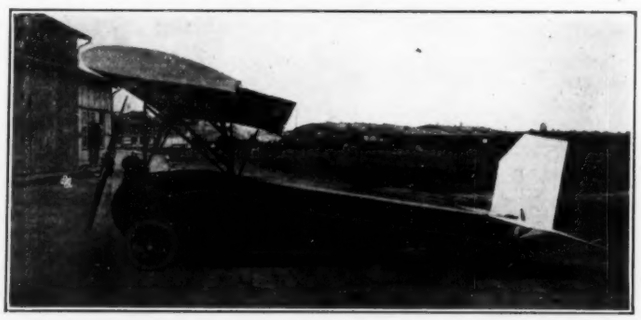
Flying cannot long, however, be a government monopoly. Its interests are too universal. They are civilian in nature, and a wise air program would recognize this fact and utilize it. With the right kind of stimulation, pilots would produce themselves. Some day there will be a million pilots in America. Whether this day is to be ten or a hundred years from now depends largely upon the government's policies in directing aviation. This ultimate expansion of flying is as inevitable as that of the use of the automobile. In fact, the nature of the appeal— the need—is even more insistent. The young men of tomorrow will be exercising their ingenuity on airplanes just as they are today working over their cars, their radio, and their motorcycles. These are socially sound activities. They induct the energies into those inventive channels on which the Yankee has always prided himself. The light plane now opens up whole new realms for exploration and adventure. With just a little far-sightedness, the nation could unbar the doors to set free this spirit of invention. With wise direction and properly regulated stimulus, the day of a million pilots can be appreciably hastened.

Secondly, the light plane entries in the French and English competitions have been, almost without exception, the products of aircraft factories, while here they have been built through the initiative of the pilots themselves. Our machines have had the handicap of lack of funds, and of limited facilities for finish and workmanship. But this factor of the origin of the machines in the pilots themselves is an advantage that may not be apparent the first years. This point of difference is peculiarly significant, and is interesting also in that we are here placed in much the same position as are the German glider and light plane builders.

The third point at which we are at variance with our neighbor countries is in the matter of engines for our light planes. Diversity of opinion on this point of engines indicates that there is a lack of clearness as to objective in the building of light planes. Light planes are experiments in high power loading—experiments which have already, even in their development stage, passed into useful machines. With care and ingenuity in design, higher power loading is possible without sacrifice of performance. Increase in L/D and decrease in weight are the aims. Their attainment represents scientific control. In the past the lack of this is covered up by increased engine power. Competition on the basis of skill in building light planes will be a matter of obtaining a certain minimum performance with less and less engine power.

The initial light plane meet at Dayton has taught us many things.

New German Light Plane



Albatros light plane (30-40 hp. engine), an optional single or two place ship for sport and training purposes. Wing area 143 sq. ft. Weight empty 385 lb. Weight loaded 870 lb. High speed 60 mi./hr. Range 3 hr. at high speed

AIRPORTS AND AIRWAYS

Cleveland News

By Cy Caldwell

The Glenn L. Martin Commercial plane has returned from the Dayton Races where it won third prize for speed in event 3, and second prize for efficiency in event 6. It was flown by my grandfather Cyrus Caldwell, who crossed the plains by Ox-cart in 1852 closely followed by the sheriff. Fortunately grandpa had the fastest Ox.

In the first race grandpa got away to a late start because his whiskers blew up over his goggles obstructing his view of the starter—Mechanic Bauer, however, whose ready resource never deserts him, gathered all the fringe snug with friction tape and pushed the old gentleman off.

He had been told that his most dangerous competitors in the race were Casey Jones and Jim Ray in Orioles—But no one had informed him that the Orioles had been cut down and re-built for racing and could no longer be called commercial planes with any degree of exactness.

Imagine poor old grandpa's horror when what looked like half an Oriole went past him. Apparently it had lost its radiator, all its wires, and fully half its wings. Nothing remained of the orignal Oriole but the fuselage and the name thoughtfully left on the rudder. It was a ghost, a spectre, a mere jaundiced phantom of its former self.

No wonder my poor old grandfather was staggered and flew wildly off the course until his aged mentality again functioned. He'll be 94 come next April and isn't as strong as he used to be. Then, just as he was readjusting himself to normal, along came Jim Ray in another Oriole that had lost its radiator, which threw the old gentleman off again.

You see, I had told grandpa that he was in a commercial race so he was naturally unprepared for wing radiators, cut down wings, metal propellers and high compression motors.

However, grandpa passed a flock of swallows which cheered him a bit, and landed in third place so he didn't feel so bad, for he had won over all Commercial planes and had only been out speeded by racers.

In the efficiency race the old plainsman drew second prize for carrying three passengers at an average speed of 103½ mi./hr. First place was awarded Walter Beech who carried three passengers at 89 mi./hr. with a smaller motor. Grandpa said this reminded him of a pony race he had run with Sitting Bull who had crossed the line half an hour behind him, because Bull's pony had sprained an ankle and was only running on three legs. Grandpa thought he had won, but the Judge, Old Standing Cow, declared that Sitting Bull's pony that finished last on three legs showed more efficiency per leg so had really won. Grandpa says he guesses Standing Cow was a member of the Contest Committee that rates an OX5 as 125 hp.

In this race the old sinner passed Casey Jones in the Phantom Oriole that had a forced landing through running out of gas within a mile of the finish line. Grandpa tells me he laughed so heartily at his old friend Casey standing forlornly in a field that he lost his new set of china teeth over the side.

Racing, Grandpa says, is too startling for him. So he has gone back to his old job of hauling Canadian Club over the border in a Covered Wagon.

At the Dayton Races I was reminded pleasantly of the dear old days of 1918 when I was a guest of the German Army in its prisoners' camp at Karlsruhe. There was the same herding by armed guards, the same lack of food, water and conveniences, the same happy spirit of "Serves you right for getting here !"

With the other civilian pilots I was interned among the sway-backed tents bordering the marsh at the west end of Wilbur Wright Field, 1½ mi. from the starting line of the races; a part of the field devoted to mud on two days and dust the rest of the time.

We were a race apart, pariahs, carefully segregated that we might not contaminate those more fortunate treaders of graveled walks and grassy fields; made to realize to the full our hopeless inferiority.

This isolation from the races would have been bearable had we been allowed any communion with our kind, who had gathered by the thousands to look over our humble contributions to commercial aviation.

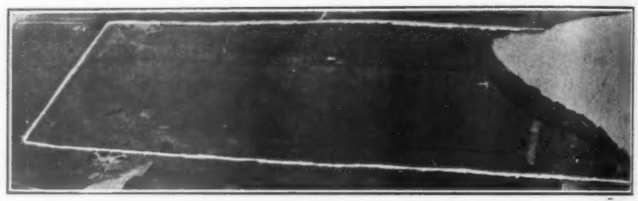
The crowd however, were sternly held back by our armed guards and were not even allowed to peer at us through the fence.

At Karlsruhe the people were at least allowed to look at us. And of course the German camp was much more comfortable.

St. Joseph's Fine Municipal Airport

Few cities in the middle west are in a more fortunate position than St. Joseph, Mo., when matters concerning aviation are to be considered. Just recently the city acquired a new field of 140 acres which is practically square with a half mile take-off in any direction and as level as nature ever made a tract of ground of that size.

The advantage does not lie so much in the acquisition of a field as in the fact that the field can be expanded to include 3,000 acres of the same topography if the occasion ever requires. Together with this is an unusual condition, in that the field can be reached from the heart of the city in ten minutes over highly improved paved streets.



St. Joseph, Mo., Airport

Army airmen who have inspected the field are highly enthusiastic over its possibilities, and these men include Lieut. Russell L. Maughan, dawn-to-dusk flier. In practically every instance the accessibility and possibilities of expansion are the things commented on most by Army as well as civilian fliers.

The city will have to spend comparatively little to put the field in condition. The drainage is ideal and the nature of the soil is a sandy loam that readily absorbs water. In this respect the field has stood a severe test this past spring and summer. The day following a three-inch rain the field was inspected by Maj. L. S. Churchill, air officer, Seventh Corps Area of Omaha, and no water was found standing on the field and landings could have been made the morning following the rain in perfect safety.

Another feature of the field is the water landing which extends along the south side of the field. This is adequate for seaplane landing and undoubtedly will be used for this purpose in the near future. At this point a natural bay is formed and the back waters are without a current which makes a wide placid surface for landing. St. Joseph is one of the few cities in the middle west that is blessed with water and ground landing facilities.

The Aviation Committee of the Chamber of Commerce, headed by Carl Wolfley, was largely responsible for acquiring this new field. While the Chamber of Commerce took the initiative in the move for a new field, every civic and commercial organization had a part in pushing the project to the front.

UNITED STATES AIR FORCES

U. S. ARMY AIR SERVICE

Army Air Orders

Sec. Lieut. Carl Benjamin Eilson, A.S. Off. Res. Corps, Washington, to active duty Langley Field reverting to inactive duty June 30, 1925.

Capt. Harry M. Smith, A.S., upon completion of foreign service to Rockwell Air Int. Dep., San Diego.

First Lieut. Roland Birnn, A.S., upon completion of foreign service, to Kelly Field.

Each of the following officers, A.S., upon completion of foreign service, to stations indicated: Capt. Richard J. Kirkpatrick, Langley Field; First Lieuts. Edward H. Wood, Middletown, Pa., Younger A. Pitts, Kelly Field, Harry F. Colliver, Langley Field, Orville L. Stephens, Middletown, Milo N. Clark, Kelly Field, John V. Hart, Chanute Field, Henry H. Reily, Kelly Field, Oscar L. Rogers, Maxwell Field.

Maj. William H. Garrison, jr., A.S., retired from active service.

Spec. Or. No. 158, relating to First Lieut. George W. Goddard, A.S., amended to relieve Lieutenant Goddard from duty at Bolling Field and to assign him to McCook Field.

James Kenneth Stevens, A.S. Off. Res. Corps, to active duty for four months' course of instruction, A. S. Prim. Fly. Sch., Brooks Field, reverting to inactive status at expiration of course.

Sec. Lieut. Edmund C. Lynch, A.S., Brooks Field, to Pope Field.

Maj. Thomas DeW. Milling, A.S., Langley Field, appointed to Educational Adv. Board.

Sec. Lieut. Sheldon B. Edwards, A.S., Brooks Field, to Kelly Field.

Spec. Orders No. 203, relating to Sec. Lieut. Glenn C. Jamison, A.S., Kelly Field, amended to direct Lieutenant Jamison to report for duty at Brooks Field.

First Lieut. Dale V. Gaffney, A.S., Kelly Field, to New York City sailing on transport for Canal Zone Jan. 8.

First Lieut. Myron R. Wood, A.S., Brooks Field, to San Francisco, sailing on transport for Hawaii Is. Feb. 18.

First Lieut. Howard A. Craig, A.S., Langley Field, to New York City, sailing on transport, via Government transportation for Hawaii Is., January 28, 1925.

Capt. Harry H. Young, A.S., Kelly Field, to Langley Field.

Capt. Romeyn B. Hough, jr., A.S., Phillips Field, to Chicago as Proc. Plan. Rep.

Staff. Sergt. Harry W. Koch, 43rd Sch. Squad., A.S., retired.

First Lieut. Robert H. Finley, A.S., Langley Field, to New York City, sailing on transport for P. I., via Government transportation, Dec. 12.

U. S. NAVAL AVIATION

New Duration Record Made by Seaplane

All known duration records, official and unofficial, for a single-motored seaplane were surpassed when the new Navy CS2, combined bombing, scouting and torpedo plane, landed near Quantico, Va., after a 20 hr. 28 min. non-stop flight ending Oct. 10.

The giant Navy plane took off from the Naval Air Station at Anacostia with a load of 600 gal. of gasoline, weighing about 3,600 lb. During the afternoon the CS2 flew on a course between Washington and the mouth of the Potomac River.

At dusk the pilots headed for Washington and flew in the vicinity of the air station until 1 a. m. when a fog obscured landmarks. The plane was then headed for Hampton Roads and flew over the latter station until early in the morning. On the return to Washington the gasoline supply was exhausted near Quantico, and the pilots landed at 7:58 a. m.

An average speed of 73 mi./hr. was maintained throughout the flight, and a total distance of approximately 1,500 mi. was covered.

The pilots, Lieuts. Andrew Crinkley and Ross C. Lyons, U.S.N., carried sandwiches and coffee and alternated in sleeping when off watch.

The plane got off with its heavy load in a run of about 3 mi. down the Potomac River. Three pontoons supported the plane when it took off, but one of these was detached by a mechanical releasing gear as soon as the plane was in the air and was recovered undamaged by the air station personnel.

The CS2 was constructed by the Curtiss Aeroplane and Motor Co., and is powered with a single Wright T3 engine of 650 hp. It was specially designed for naval use, being quickly convertible from a seaplane to a landplane and capable of operating from the deck of an aircraft carrier.

Its weight is about 4,000 lb. It is constructed of steel and duralumin, except for the wings, which are of wood and fabric, and so designed that they can be folded back to effect a marked saving in space for stowage on shipboard.

The CS2 is the first plane that has been produced which combines the three functions of bombing, torpedo carrying and scouting.

Captain Steele to Assume Command at Lakehurst

Orders have been issued to Capt. George W. Steele, U.S.N., to assume command of the Naval Air Station, Lakehurst, N. J., upon his arrival in this country.

The reason for this assignment is that it is the Navy Department's intention that Captain Steele command the new Zeppelin ZR3. Upon the arrival of the ZR3 in this country it will be turned over by the German Commander to the Commanding Officer at Lakehurst. From the time of the turning over by the Germans until the commissioning of the ZR3 by the Navy, the airship will be under the supervision of the Commanding Officer of Lakehurst, and when commissioned commanded by Captain Steele.

Captain Steele has been on duty at Friedrichshafen, as the United States Naval observer and will make the Trans-Atlantic trip in the ZR3.

Comd'r Jacob H. Klein, Jr., will become executive officer at Lakehurst, and when the ZR3 is commissioned will be its executive officer.

Naval Air Orders

Lieut. Stanton H. Wooster, det. U.S.S. Langley, to Bureau of Aero. Navy Dept.

Lieut. William J. Carter (SC) det. Nav. Air Sta., Anacostia, to Harvard Grad. Sch. of Business.

Lieut. Ralph H. Howard (SC) det. Navy Yard, Washington, to Nav. Air Sta., Anacostia.

Lieut. James M. Shoemaker det. Bu. of Aero. Navy Yard to U.S.S. Langley, involving flying.

Lt. Comdr. Samuel R. White (SC) det. Nav. Supply Depot, San Diego, to Nav. Air Sta., Pensacola.

CALENDAR OF AERONAUTICAL EVENTS

Oct. 24-25.	Schneider Cup Race, Baltimore.
Dec. 17.	Twenty-first anniversary of the first successful airplane flight.
Dec. 5-21.	International Aircraft Exposition, Paris, France.

BACKFIRES

The dizzy heights to which the aeronautical ecstasy of a groundsman may reach was well shown by the *New York World* reporter who contributed the following gem to his paper:

"*Like a sacred bauble in a gloomy vault*, the ZR3 reposed yesterday in the hangar at the naval air station at Lakehurst, N. J."

After that mere aeronautical writers might just as well go into retirement.

* * *

Irrefutable proof of the Crushing Power of Red Tape—as narrated further on by the above named contemporary:

"One man marched gloomily to and fro all day long before the hangar. He was Customs Inspector John Angney.

" 'I'm here for another three or four weeks,' he said. 'My duty is to see that somebody pays duty on this gas bag or has the right to get it in free.

" 'The ZR3,' Mr. Angney explained, 'is an imported article. The Zeppelin hasn't been taken over formally by the United States. If the United States doesn't take it over I've got to collect duty. If the United States does take it over, they've got to give me a paper showing it is exempt. That's going to take a long time.' "

* * *

"In 1918 the United States Navy operated *1515* blimps and made 8847 flights without injury to anyone," if we are to believe, once more, the *N. Y. World*, who attributes this statement to Maj. Gen. C. R. Edwards, U.S.A. retired.

Fifteen hundred blimps. Well, well, well.

* * *

Some people still can't tell one aircraft type from another. Witness the Special Dayton Air Race Edition of the *N.A.A. Review*, which gives a nice layout showing progress in transportation speed. Progress across the Atlantic Ocean is depicted by the Santa Maria which carried Christopher Columbus across in 70 days; by the Leviathan which crosses in 5½ days; and by Lt. Comdr. Albert C. Read's plane which hopped across in 39 hr. And instead of showing the NC4 which Commander Read piloted, our contemporary uses a cut illustrating *two F5L's*.

If that were all. Right underneath is another layout showing progress in transportation across the continent—the covered wagon, the fast mail train and the dawn-to-dusk airplane. And what do you suppose illustrates the dawn-to-dusk ship? Not the Curtiss Pursuit which Lieut. R. L. Maughan flew. Oh no. It shows the T2 monoplane that flew non-stop from New York to San Diego.

And thus is the history of aeronautics written. It is to weep, as they say in the Glagolithic dialect.

ONE WING LOW

Where to Fly

CALIFORNIA
Learn to Fly in San Diego—The City of a Thousand Planes
THE RYAN SCHOOL OF AVIATION
Offers ideal flying conditions all seasons. First class facilities and equipment. Opportunity to study latest type planes and construction. Complete flying and ground course at reduced rates for a limited time.

CALIFORNIA
VARNEY FLYING SCHOOL
Established since 1914
SAN MATEO SAN FRANCISCO

ILLINOIS
HEATH AIRPLANE COMPANY, Inc.
Oldest aeronautic establishment in U. S.
Airplane Supplies — Flying School
2856 Broadway — Chicago

ILLINOIS
PARTRIDGE, Inc.
Aeronautical Instruction
Aero Club of Illinois Field. Chicago, Ill. *Write for Booklet*
Mail Address-- 430 S. Michigan Ave

ILLINOIS
FLY THEM YOURSELF
Flying instructions by the hour. Ex Air Mail Pilots as instructors. All size ships and motors. All year flying.
YACKEY AIRCRAFT COMPANY
Flying Field, Checkerboard Field, Maywood, Illinois
Telephone Maywood 1963 (Suburb of Chicago)

ILLINOIS
MID-WEST AIRWAYS CORP.
MONMOUTH, ILL.
One of the four best fields in America
Thorough Flying Instruction Course by experts at lowest rate.
Passenger Flights to Points Near or Far

KANSAS
AVIATION ENGINEERING CO.
Popular Priced Light Airplanes
Flying Instruction and Advanced Shop Course
N. 7th & LINCOLN — LAWRENCE, KANSAS
40 mi. from Kansas City on Victory Highway

MARYLAND
THE SKYSYNE CORPORATION
NIGHT & DAY AERIAL ADVERTISING
OFFICE 711 Keyser Bldg. Baltimore
Get our prices FIRST 3 Planes at your order
AIRDROME Logan Field Dundalk, Md.

MISSOURI
NICHOLAS-BEAZLEY AIRPLANE CO.
Standard J-1's in carload lots or flyaways, Jennies, Canucks, Motors, Supplies, Parts. *Everything for the Aviator.*
MARSHALL, MO.

MISSOURI
ROBERTSON AIRCRAFT CORPORATION
Airplanes Motors, Parts, Supplies; Shops and Hangars
ST. LOUIS FLYING FIELD
ANGLUM, MO.

NEW JERSEY
CHAMBERLIN-ROWE AIRCRAFT CORP.
Aerial Advertising, Photography, Passenger Carrying, and Flight Training
New York Air Terminal — Hasbrouck Heights, N. J.

NEW YORK
Curtiss Exhibition Company, Garden City, N. Y.
Flying Fields—Garden City, Buffalo, N. Y.; Dallas, Tex.; Miami, Fla. Complete flying service including schools, aerial photography, passenger and fast cross country transportation to any point. *Machines presented to students who take flying course.*
WRITE FOR BOOKLET

NEW YORK
PORT WASHINGTON, LONG ISLAND
FLYING BOAT SCHOOL
Clifford Webster—Instructor
Curtiss Metropolitan Airplane Co., Inc.

OHIO
AKRON-CLEVELAND
Flying School for students in Aviation. "Pay as you Learn."
Modern WACO Plane with high-lift wings.
Passenger Rides Advertising Photography
STOW AVIATION FIELD
Stop 53 Akron-Kent-Ravenna Car line. Rt. 1, Cuyahoga Falls, Ohio.
Hangars Supplies 6 mi. northeast of Akron.

OHIO
DAYTON, OHIO
Supplies, Hangars, Shops and Field 1 Mile from Dayton limits.
JOHNSON AIRPLANE & SUPPLY CO.

PENNSYLVANIA
ESSINGTON SCHOOL OF AVIATION
Established 1915 — Frank Mills, pilot
FLYING BOATS, SEAPLANES, AND SPARES
ESSINGTON (just west of Philadelphia), PA.

TEXAS
SAN ANTONIO AVIATION & MOTOR SCHOOL
MUNICIPAL FIELD
South of Town between two Government Fields
AIRPLANES, ENGINES, PARTS, SUPPLIES, SHOPS, HANGARS
City Office, 509 Navarro Street — San Antonio, Texas

Publisher's News Letter

By C. G. GREY, *"The Aeroplane,"* London.

Advertising was invented in America. Nobody advertises so much or so emphatically as the American business man. So it seems queer, coming as a stranger to a strange though very friendly land, to find that about the only people in American Aviation who advertise at all strenuously are the Flying Services of the U. S. Army and Navy.

Of course the Services would not be so vulgar or so commercial as to advertise in the ordinary way of publicity—except for enlisted men. But they do advertise very successfully, for they get more free publicity than any business in the World, except perhaps Henry Ford's.

What is the Shenandoah and her trip to the Pacific Coast and back except a huge advertisement for the Navy? She has no War value and no Commercial value. What Service value she has is purely experimental. And her chief value is publicity.

What is the ZR3 other than an advertisement. Under the Versailles Treaty she is forbidden to have any War value, for reparations must not be paid in War Material. She must be put to a commercial use within six months. But she has no commercial value. Therefore, except as an experiment in construction, her only use is as an advertisement for the Navy or Army.

What were the flying displays at Dayton and elsewhere other than advertisements for the Army?

What were the Pulitzer Races of 1922 and 1923 other than advertisements for the Army and Navy? And was not the 1924 Pulitzer Race intended as an advertisement for the Army? The fact that it turned out to be a very bad advertisement does not make it any less an advertisement.

Nobody blames the Army and Navy for advertising. The more they advertise the more money they can squeeze out of Congress for more men and more aircraft. And the bigger the Air Services grow the better for the Defence of America—and incidentally the better for the Aircraft Industry.

Apparently their advertising even goes so far as running an advertising journal of their own. It is true that outside Bolshevik Russia, where everything nominally belongs to the State (barring the rake-off), no Service publication would be allowed to compete directly with a commercial enterprise, as seems to be allowed by the American Service High Commands. But the fact that *U. S. Air Services* does exist shows the way in which the Commanding Officers of the Army and Navy Air Service appreciate the sweet uses of advertisement.

With such a magnificent example of self-advertisement before them it is the more surprising that the American Aircraft Industry does not advertise more. The support given by the Trade to AVIATION, America's one and only technical aircraft paper, looks lamentable alongside that given to the English, French and Italian and even the German aircraft press.

Talking to people in the Trade, one meets the old, old argument that the Trade has only one customer, the Government and so there is no need to advertise. That is the poorest possible argument in favor of the worst kind of false economy. Just look at it this way:—

In the first place, any Trade that hopes ever to become an Industry needs a strong trade paper to fight its battles. And it needs a big trade paper in which to air its arguments. A big and strong trade paper costs money for salaries and wages, for paper and printing. And unless the proprietor happens to be a millionaire philanthropist Trade advertising must bear a part of the burden. If it does not, then the paper passes out and the Trade is left without either a defensive barrier or an arena.

In the second place, it pays to advertise to Government Services. After all, who are the people on whom the buying of aircraft and motors and accessories and material ultimately depend? They are the pilots and engineers and mechanics of the Flying Services. If a plane or a propeller or a motor or a meter gets a bad name among these users it is not going to be used very long, and if it gets a good name it is going to be bought in the long run. And good advertising is the best and cheapest way of making a good name.

The pilots and engineers and mechanics are to the Aircraft Trade what the retail buyer is to any other trade. They are the users of the goods. When an advertisement has soaked the name of an article into them they ask for it from their station stores, which is the retail store of commerce. When the stores of various stations have been asked often enough they demand supplies of that article from the supply depots, which correspond to the wholesale warehouses of commerce. When the supply depots have been asked often enough by enough stores they ask in turn for that article from the purchasing departments of the Services, which correspond to the wholesale merchant who buys and sells without ever seeing his goods in bulk and dealing only on samples.

Thus you have repeated in the Services exactly the same chain of purchasers which you find in any other trade. Try it for yourself if you don't believe it. Think off-hand of the names of the best aeroplanes in Europe and you will find yourself merely repeating a list of the biggest advertisers in the English and French aviation papers. These firms advertise because they make the best aircraft and sell most of them. Also they make the best aircraft because they have the brains not only to make them but to advertise them.

The man who has not the intelligence to advertise largely and cleverly may make one or two good aeroplanes, just as a village bootmaker may make one or two good pairs of boots. But the man who wants to make good goods and make them in quantities and so make big money has to spend money in advertising.

Also, it has been said that a nation has the newspapers it deserves. It is perfectly certain that an industry has the trade journals it deserves. If a Trade will not support its trade journal that journal cannot support the Trade. And buyers at home and abroad whether in the Services or not, almost inevitably estimate the importance of a Trade by the general appearance of the journal which it supports. The Trade which has a poor-looking journal must be a poor trade.

But if a trade does happen to be poor owing to temporary bad trade there is no need to advertise the fact by issuing a poor-looking trade journal. If it comes to a question of economy it is better to get rid of a junior clerk and advertise well than to drop advertising and keep the clerk. For the salary of a clerk will buy a biggish advertisement in any aircraft trade paper that exists so far.

A Suggested National Air Policy

That a National Aviation Policy is needed by the United States is obvious. To get such a policy in concrete form AVIATION *requested several thoughtful friends of aeronautical progress to make suggestive and constructive recommendations. Some of them are given below and will be printed each week with additions, omissions and such other changes as appear to be helpful toward the formulation of a sound national air policy. Readers of* AVIATION *and others can render no greater service to the cause of aeronautical progress than contributing their comments and suggestions.*

GOVERNMENTAL.

A continuing program of aircraft development both governmental and commercial.
A civilian, charged with championing a national air policy, is needed in the Government. **Cabinet*
Aircraft committees in the House and Senate to hold aircraft hearings where civilians as well as government officials can express their opinions. **composed of fliers.*
A detailed aircraft budget for all Governmental Departments, and an annual statement of all expenditures.
An experienced staff of flying officers at the head of all governmental air defense services.
Coordination of all procurement and experimental aircraft work of the government under one agency.
**Co-ordination of the aircraft experimental development of the government leaving procurement to the various branches themselves.*
Limitation of government manufacture to repair of aircraft and specialized work that cannot be done by private firms. **No limitation on experimental construction.*
The elimination of the duplication of aerial functions and facilities by government departments.
A country wide Air Mail system of trunk lines connecting the principal cities of the country. **Retirement law for air mail pilots.*
Establishment of a National Airway System through cooperation of the Federal Government with States and Cities. **A landing field in every large city.*
A national aircraft law that will regulate aviation, administered by practical pilots and experienced aeronautical engineers. **and federal air police.*
Membership of the United States in the International Convention for Air Navigation.
**Increased governmental appropriations for aerial development.*
**Encouragement of aviation rather than subsidy.*

COMMERCIAL AIRCRAFT OPERATION.

Creation of commercial air lines by private enterprise or government subsidy.
Encouragement of participation by private companies in aircraft races and competitions.
Encouragement of the training of pilots by civilian schools.
Creating an Esprit de Corps among flying men all over the country by frequent gatherings at aviation meets.
**Encouragement of safe and sane flying.*
**A continuing organization, including representatives of all important points of view in aeronautics, for the discussion of standards for aeronautics where standardization is desirable.*

INDUSTRIAL AIRCRAFT CONSTRUCTION.

Recognition that a sound aeronautical industry is a prime necessity of our National Defense.
An active industrial association that will coordinate the aircraft industry and defend it from attack.
Encouragement of the designing of new types of aircraft by manufacturers by allowing them to retain their proprietory rights.
Concentration of manufacturing firms on specialized types of army and navy aircraft. **When production demands are heavy.*
Encouragement of research by constructors, universities and other agencies as well as by the government.
Encouragement of an annual design competition for commercial aircraft.

CIVILIAN.

A national aeronautical organization composed of public spirited citizens that will take a strong position of leadership on national aeronautical policy. **Unification of all aeronautical organizations into one national association with chapters in all cities and towns.*
An Annual Aviation Week during which the country will think of aerial progress. **52 such weeks.*
The formation of local aero clubs by fliers for the purpose of stimulating flying in all localities.
Encouraging the public to fly and patronize the air mail and transport facilities.
**The encouragement of gliding and soaring contests, especially interscholastic.*

*Suggested changes.

THE Aircraft Service Directory

WHERE TO PROCURE EQUIPMENT AND SERVICES

AIRCRAFT COMPASS

PIONEER INSTRUMENT COMPANY
MAIN OFFICE AND FACTORY BROOKLYN NEW YORK
WASHINGTON 441 STAR BUILDING
PARIS 97 BOULEVARD SAINT MICHEL
SAN FRANCISCO 15 SPEAR STREET

BELLANCA

6 Seater with 90 hp. OX5
8 Seater with Hispano
COLUMBIA AIRCRAFT CORPORATION
FARMINGDALE, L. I., N. Y.

EVERYTHING FOR AIRCRAFT

Best Acetate or Nitrate Dope, gal., $2.50. Resistal Goggles, pair, $3.00. OX5 Engine, in Fine Shape, $125.00. Spark Plugs, each, $.25. Spar Varnish, gal., $5.00. HO Light Motor, 12-15 hp., 36 lbs., Price Reduced to $375.00. Blueprint of 75 m.p.h. Aerodrive Sled, $.50. Aerodrive Sled Complete, $495.00. Spruce, Steel, Aluminum, Plywood.

State Specific Needs

Ostergaard Aircraft 4269 N. Narragansett, Chicago

LUDINGTON EXHIBITION COMPANY

Sport Farman Ships
Aerial Taxi Service
Exhibition Flying

Office: 810 Atlantic Bldg. PHILADELPHIA
Flying from field of G. S. Ireland PINE VALLEY, N. J.

—PETREL MODEL FIVE—

—Super-Performance In the 3 Seater Class—
—Seaplane or Landplane to Suit Your desires—
—Air Cooled or Water Cooled Motors—

Details on Models Four & Five gladly furnished on request

HUFF DALAND AERO CORPORATION
OGDENSBURG, N. Y.

NEW HS2L FLYING BOATS
in original crates
AND MF BOATS
$600.00
GULF COAST AIRLINE
515 Whitney-Central Bldg. New Orleans, La.

SPECIAL DAYTON-WRIGHT BUILT LIBERTY MOTORED CRUISER, 4-place, 130 gallon gas capacity, perfect Bijur starter, equipped for mapping camera. Plane in perfect condition; never left out in weather. An unusual plane for a special service.

AERIAL COUPE—Most luxurious plane in America—Capacity two passengers and pilot, wonderful performance. Dayton Wright built. For sale with or without Hisso motor.

The above planes may be seen and demonstrated at our flying field.

THE RINEHART WHELAN COMPANY, Inc.
SOUTH FIELD DAYTON, OHIO

We Carry a Large Stock of New and Used Airplanes, Motors and Supplies, and have on hand New JN4D's in original crates at $1,250; Used JN4D's in excellent condition all ready to take off, $750; OX5 Hammondsports complete, crated, $300; Canuck Uppers $50; New 26 x 4 Wheels $4.50; New 26 x 4 Casings $4.50; Slightly Used Casings $3; New Tubes $2; Altimeters, all makes, $6; Tachometers, all makes, $6; New JN4D Landing Gears, complete, $60; Copper Tipped Toothpick Propellers, $18; New JN4D Cowling, right $13, left $12; New Spark Plugs 25c, or in dozen lots $2.40; Sterling Silver Bar Pin with safety catch $1. Prompt service on orders. WALLACE AERO CO., Bettendorf, Iowa

New SEAGULLS $2600.00, New K6 ORIOLES $2200.00, New JN4Ds $1000.00, STANDARD without motor $600.00, Used STANDARD K6 three-seater $1500.00, Used JN4Ds $400.00 and up, Used OX5 motors $50.00 and up, New OX5 motors $175.00, Used K6 motors $250.00 and up, New K6 motors $1000.00.

Before purchasing spare parts get our prices.

G. S. IRELAND
CURTISS FLYING FIELD GARDEN CITY, N. Y.

PARAGON PROPELLERS

BETTER THAN EVER

American Propeller & Mf'g. Co.
Baltimore, Maryland

THOMAS MORSE SCOUTS S4C, in original crates. None used over eight hours. Fabric and the entire ship in excellent condition. Wire control $375.00, spad control $395.00. F.O.B. cars.

Government overhauled OX5 motors $125.00. Spinner nose $15.00. Center section radiator $51.00. Nose mounting $80.00. Veneer mahogany 30c ft. Above parts for converting rotary motored Thomas Morse scouts into OX5 Yackey Sport Model. Only a limited number left. These prices for immediate acceptance and subject to change without notice.

YACKEY AIRCRAFT COMPANY Forest Park, Illinois (Suburb of Chicago)

Army Surplus Airplanes and Supplies

Standard J1—OX5, OXX6, and Hispano 150 motored, $750. Curtiss JN4D—OX5 motored, new and used, $400. Avro and Thomas Morse Scouts, new and used.

Motors, Hispano 150, Hispano 220, Curtiss OX5 and OXX6.

Wings, single or sets—Standard, Curtiss JN4, or Canuck. Special bargain tail units; Curtiss JN4 and Canuck rudders, $4. Propellers, parts, dope, linen, tires, wheels, tubes—immediate shipment. Resistal goggles, $3; special price larger orders.

Price List on Request

Marvin A. Northrop, 200 Builders Exchange, Minneapolis, Minn.

Ansaldo—Oriole—Standard Owners!

We have every part for you ready for shipment. Wings, Motors and landing gears. Banks for Hisso and Wright and all necessities for C6 and Spa. Also Ships Complete—Two Ansaldos never been flown, remaining one like new.

Flying instructions. *Write, wire or phone.*

Earl K. Parker, 1339 Downing Street, Denver, Colo.

Airplanes, Flying Boats, Motors and Supplies. Parts for JN4D Canuck, J-1 Standard, OX5, OXX6 Hispano and Liberty. Fireworks:—Spectacular Night Plane Display $48.; Flash Bombs, good for day or night $4.; Flag Bombs $3.75; huge Smoke Trail $3.50. Non-shatterable Goggles:—NAK Wide-vision $4.85 or Jumbo $3.50. New 26 x 4 Cord Casing $4.; Slightly Used Casing $3.; Moderately Used $2.; New Tubes $2.; Altimeter $5. JN4D or J-1 Gas Tank Gauge $5.; Rotary Map Case—Rotate as Trip Progresses $3.50. JN4D Gas Tank with Gauge $15. Special:—150 H.P. Hispano Motored 3-place Standard, fair shape, $1050.

716 West Superior FLOYD J. LOGAN Cleveland, Ohio

AIRCRAFT SERVICE DIRECTORY

CONTINUED

JULY 1909 -- 15 YEARS AGO

Bleriot made first flight across the English Channel.
During this pioneer period Hamilton carved propellers by hand.
Today—the Channel is crossed frequently daily.
Today—Hamilton Propellers are manufactured in quantities in the most complete and only exclusive propeller plant in America.
Get our new low prices now.

Hamilton Aero Mfg. Co., Milwaukee, Wis.

HAROLD EVANS HARTNEY
AVIATION CONSULTANT
528 Transportation Building
Washington, D. C.

SPECIAL CLEAN-UP SALE
CHOICE

Jennies, Canucks and Standards. OX5 and Hisso Motors
Prices will be advanced fifty percent by Spring. Wire now.

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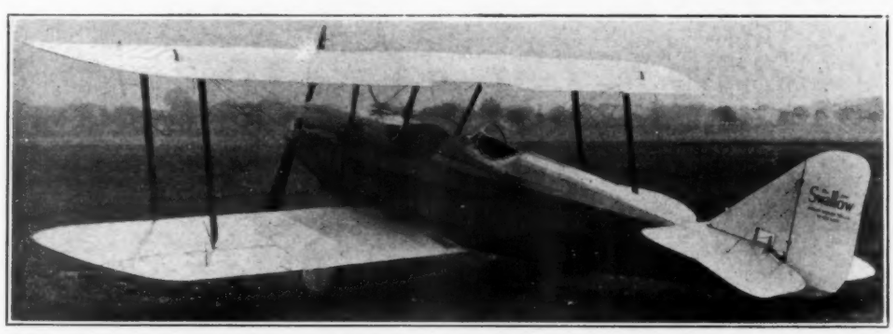

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